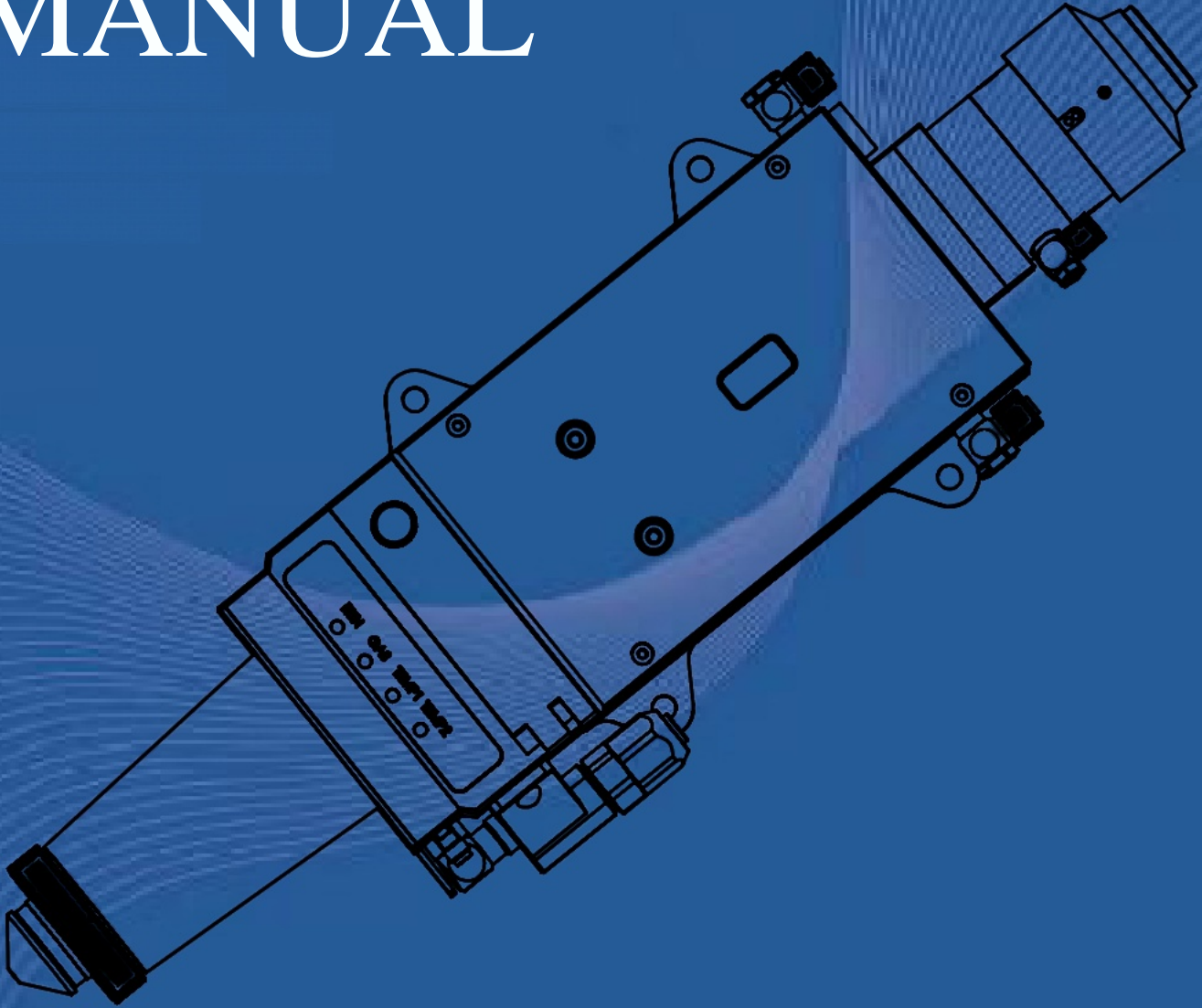


Consultation Hotline☎
400-836-8816

PRODUCT INSTRUCTION MANUAL



NC65

Fiber Automatic Focusing Cutting Head (External Drive)

V1.0



Shenzhen Worthing Technology Co., Ltd.
www.wsxlaser.com



Instruction Manual Change Log

Serial Number	Modification Time	Version



Contents

1. Product Description	
1.1 Product Views.	1
1.2 Technical Parameters.	2
2. Cutting Head Installation	
2.1 Preparation Work.	3
2.2 Specific Operation Process.	4
2.3 Clean and Wipe the Fiber Connector of the Cutting Head.	5
2.4 Check the Fiber End Face of the Laser.	5
2.5 Tear off the Protective Film/Remove the Protective Cap	5
2.6 Fiber Interface Connection.	6-7
2.7 Install the Cutting Head on the Z - Axis of the Cutting Machine.	8
2.8 Install the Ceramic Ring and Nozzle.	8
3. Use and Maintenance of the Cutting Head	
3.1 Coaxial Adjustment.	9
3.2 Replacement of the Ceramic Ring and Nozzle.	10
3.3 Replacement of the Lower Protective Lens.	11
3.4 Replacement of the Collimating Protective Lens.	12
3.5 Replacement of the Middle Protective Lens.	13
4. Installation Dimensions of the Cutting Head	14
5. Electrical Wiring Instructions	
5.1 Wiring Diagram for the BERCUT Bus System.	15
5.2 Wiring Diagram for the BERCUT Pulse System.	16
5.3 Wiring Diagram for the WEIHONG Bus System.	17
5.4 Wiring Diagram 1 for the WEIHONG Pulse System.	18
5.5 Wiring Diagram 2 for the WEIHONG Pulse System	19
5.6 Wiring Diagram for the Monitoring with BERCUT System.	20
5.7 Wiring Diagram for the Monitoring with WEIHONG System.	21
5.8 USB485 Wiring Diagram.	22
6. Parameter Configuration Instructions	
6.1 Parameter Configuration for the BERCUT Pulse System.	23
6.2 Parameter Configuration for the BERCUT Bus System.	24
6.3 Parameter Configuration for the BERCUT System.	25
6.4 Parameter Configuration for the WEIHONG Pulse System.	26
6.5 Parameter Configuration for the WEIHONG Bus System.	27
6.6 Focus Control Options for the WEIHONG Bus System.	28
6.7 Polarity Modification for the WEIHONG System.	29

7.USB485 Driver Installation Process

7.1 Installation Process 1	30
7.2 Installation Process 2	31
7.3 Installation Process 3	32
7.4 Installation Process 4	33

8.Monitoring Usage Instructions

8.1 Installation Process of the Monitoring Software.	34
8.2 Explanation of the Cutting Head Status Indicator Lights.	35
8.3 Monitoring Parameter Settings.	36
8.4 Monitoring Parameter Settings.	37

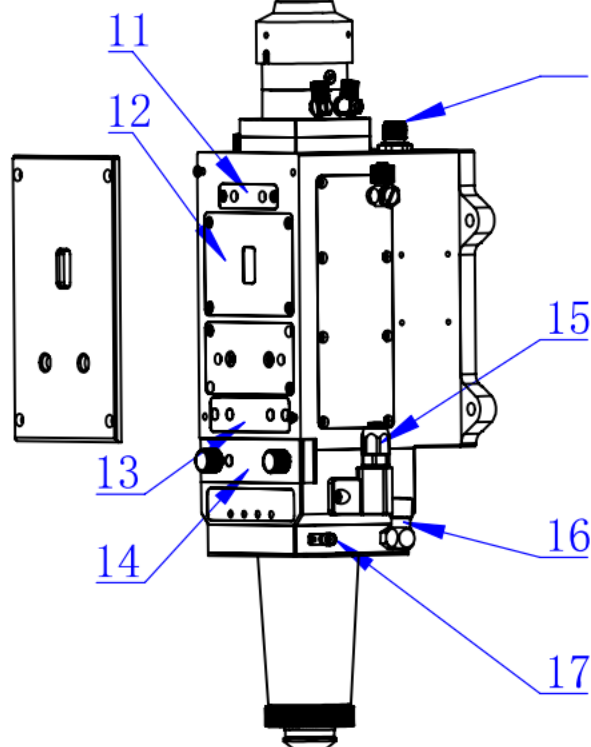
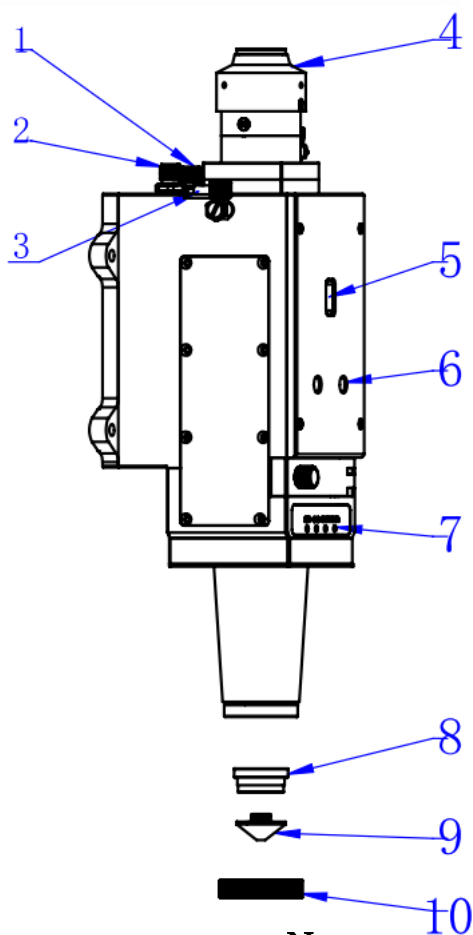
9.Driver Fault Code Query

9.1 Alarm Codes for the Pulse - Type Driver.	38
9.2 Alarm Codes for the Bus - Type Driver.	39

1.Product Description

1.1 Product Views

- | | | |
|---------------------------------------|------------------------|----------------------------------|
| 1. 8P Aviation Socket | 2. 12P Aviation Socket | 4. Fiber Interface |
| 3. 9P Aviation Socket | | 4. Fiber Interface |
| 5. Collimating Focusing Window | | 6. Center Adjustment Window |
| 7.Center Adjustment Window | | 8. Ceramic Ring |
| 9. Nozzle | | 10. Locking Ring |
| 11.Collimating Protective Lens Drawer | | 12. Collimating Lens Drawer |
| 13.Focusing Protective Lens Drawer | | 14. Lower Protective Lens Drawer |
| 15.Cutting Gas Interface | | 17.Follow - Up Signal Interface |



Note:

To avoid damage during storage and transportation, the following conditions must be noted:

- 1.The cutting head should be stored within the allowable temperature and humidity range.
- 2.The staff should take reasonable measures to prevent the cutting head from being vibrated or impacted;
- 3.The cutting head should not be stored in or near a magnetic field (such as a permanent magnet or a strong alternating field).



1.2 Technical Parameters

Basic Parameters	
Cutting Head Model	NC65
Applicable Power	$\leq 8\text{kw}$
Laser Wavelength	$1070 \pm 30\text{nm}$
Fiber Interface Type	QBH/G5/QD, etc.
Collimating Protective Lens	D25. 4x4
Collimating Focal Length	D37x100mm
Focusing Focal Length	D37xF150mm/D37x200mm
Focus Adjustment Range	$\pm 21 (100:150) / \pm 38\text{mm} (100:200)$
Middle Protective Lens	D34x5
Lower Protective Lens	D34x5
Centering Adjustment Range	$\pm 1.5\text{mm}$
Cutting Gas Interface	10 (Optional 10), Max 2.5MPa
Cooling Gas Interface	6, Max 0.6MPa
Cooling Water Interface	8, Max 0.5MPa
Operating Temperature	$3^{\circ}\text{C} \sim +55^{\circ}\text{C}$
Storage Temperature	$-20^{\circ}\text{C} \sim +55^{\circ}\text{C}$
Weight	Approximately 5.4kg (QBH Interface)

2. Installation of the cutting head

2.1 Preparation work

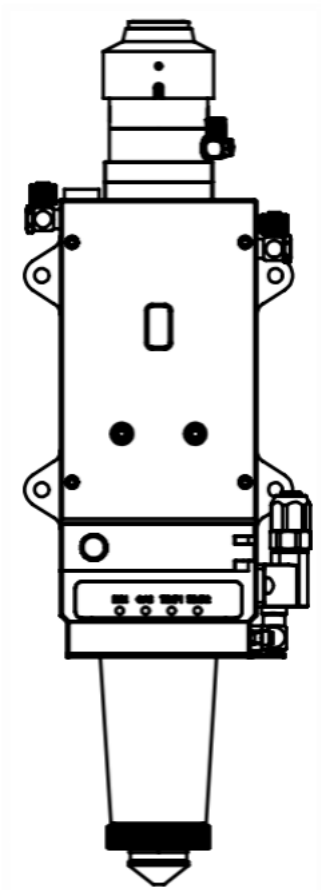
The preparation work aims to prevent dust or dirt from entering the cutting head. You can refer to the following methods for the installation of the cutting head:

Before operation, the following conditions need to be met:

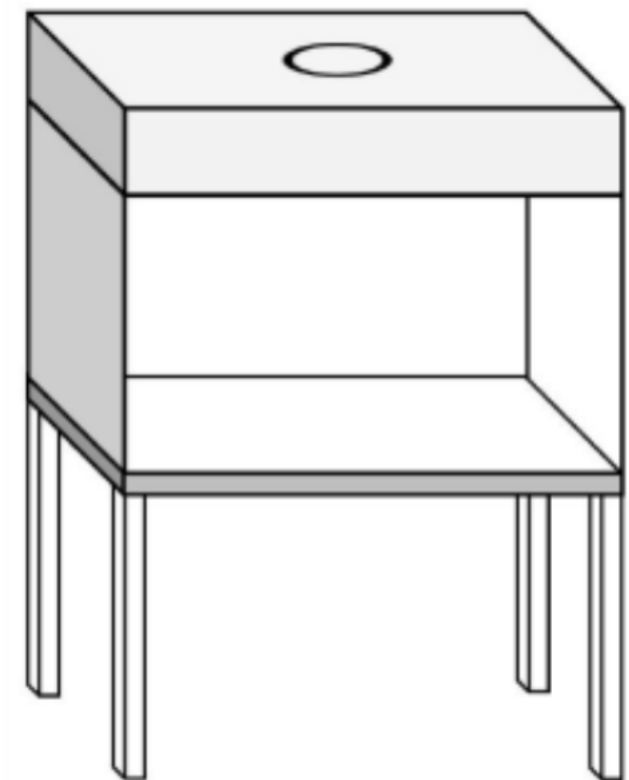
A. Cutting head

B. Clean workbench (Type of clean workbench: vertical purification; Cleanliness class: ISO5, Class 100; Average wind speed: ≥ 0.4 m/s)

C. Cleaning kit high-intensity flashlight, absolute ethanol (or IPA), dust-free purification cotton swabs, dust-free cloth, compressed air dust removal canister (or air blower).



Cutting head



Clean workbench

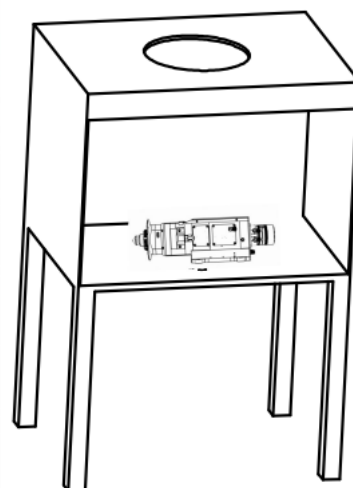
2.2 Specific operation process

Prepare the clean workbench and start it to work.

The clean workbench should have the following specifications:

Type: vertical purification;

Cleanliness class: ISO5, Class 100; Average wind speed ≥ 0.4 m/s



Preparation:

- A. Check that the equipment is clean and qualified (check the cleanliness with a dust particle counter), and ensure that the FFU purification unit is within the validity period (measure the average wind speed in the working area. When the wind speed cannot reach 0.3 m/s, the FFU purification unit must be replaced).
- B. Check whether each switch is operating normally and whether the fan is operating normally.
- C. Unnecessary items are strictly prohibited from being placed in the clean working area to ensure that the clean airflow is not disturbed.
- D. For a newly installed or long - unused clean workbench, clean it with a dust - free cloth and absolute ethanol before use.

Startup and use:

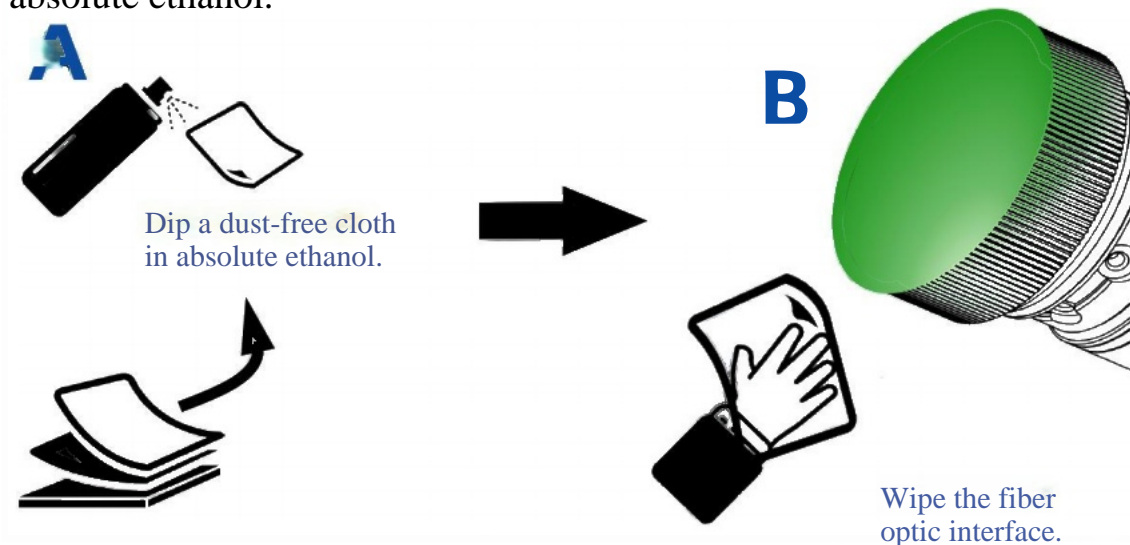
- A. Connect the power supply and pull the glass sliding door of the clean workbench to the lowest position (leaving a gap of about 10 cm).
- B. Start the fan and it is recommended to pre - purify the clean area for about 20 minutes.
- C. After normal operation, turn on the lighting power supply of the clean workbench.

Special instructions:

- A. Only trained professionals are allowed to operate.
- B. If operators do not follow the safety work specifications, it may pose a danger to personnel or property.
- C. To ensure the normal operation of the laser device in the working environment and the safety of operators, relevant operating specification instructions must be followed and implemented.

2.3 Wipe the fiber optic connector of the cutting head

Wipe the fiber optic interface of the cutting head with a dust - free cloth dipped in absolute ethanol.



2.4 Check the end face of the laser fiber

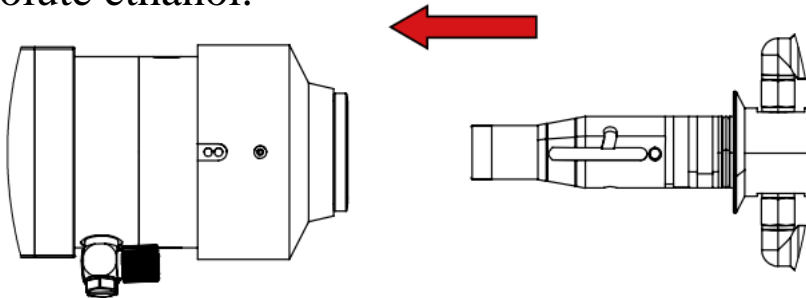
Remove the protective cap of the laser fiber, shine a high - intensity flashlight on the end face of the fiber to check for contamination. If it is clean, the fiber can be directly inserted. If it is dirty, clean it with a cotton swab dipped in absolute ethanol or IPA.

2.5 Remove the protective film/protective cap

Remove the special protective cap/protective plug on the fiber optic interface of the cutting head.

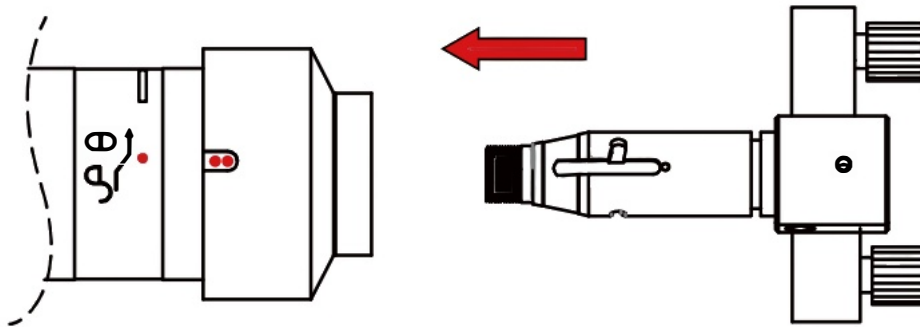
2.6 Connect the fiber optic interface

- (1) First, place the fiber rod and the fiber connector in a horizontal state.
- (2) Clean the fiber rod and the fiber connector with a dust - free cloth and absolute ethanol.



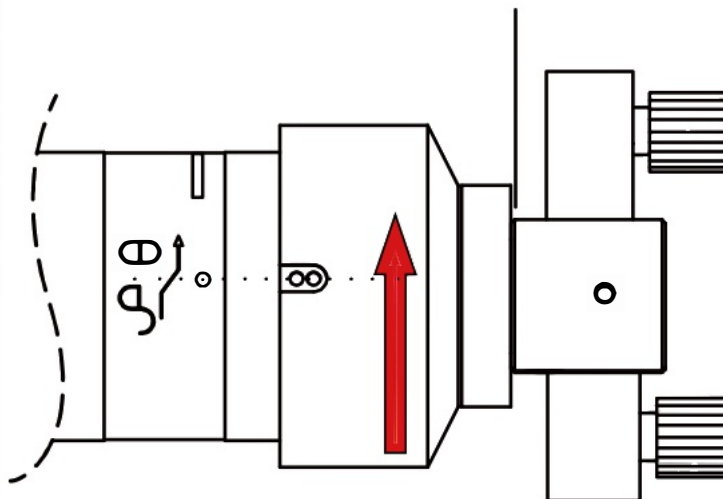
The red dots are on the same straight line.

- (3) Gently insert the fiber rod into the fiber connector.

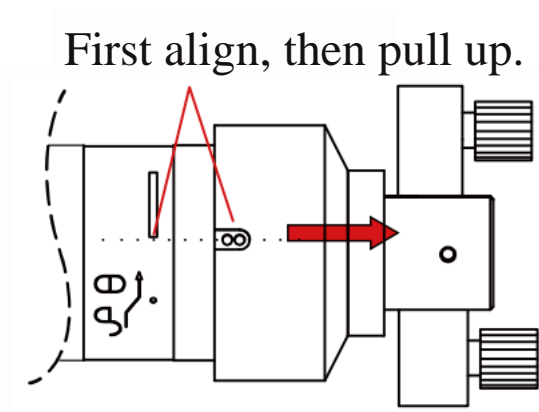


- (4) After inserting the fiber rod all the way in, rotate the red mark on the rotating sleeve in the direction of the arrow until it is within the white marking line.

Align them first.

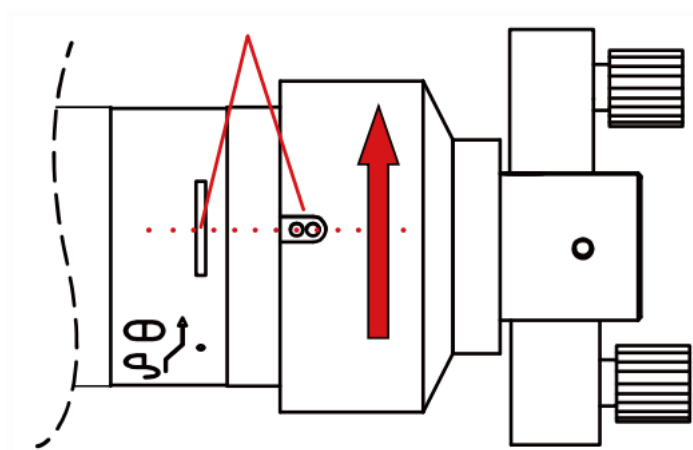


(5) Then pull up the rotating sleeve in the direction shown in the diagram.



(6) Gently rotate it again in the direction shown in the diagram with moderate force . Usually, you can feel it is locked (*twist with your thumb and index finger*).

It can be aligned or exceed the middle position, but note that you should stop turning once it is in place.



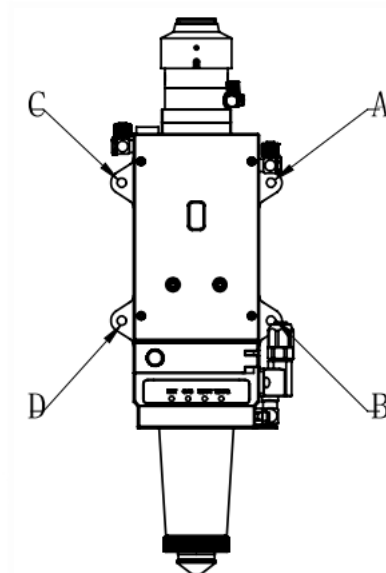
Note! Do not twist it forcefully, as it may damage the precision mechanism!



To prevent dust or dirt from accidentally entering the fiber connector, clean the fiber rod part first! Insert the fiber plug while keeping the laser head in a horizontal state.

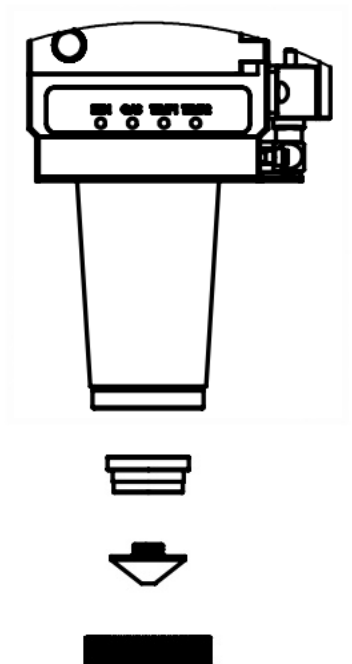
2.7 Install the cutting head on the Z - axis of the cutting machine

Install the cutting head on the back plate of the machine tool ' s Z - axis through four screws A, B, C, and D. When fixing the cutting head to the machine tool, ensure that the cutting head is locked tightly without shaking.



2.8 Install the ceramic ring and nozzle

Install the ceramic ring and lock it firmly, then install the nozzle.

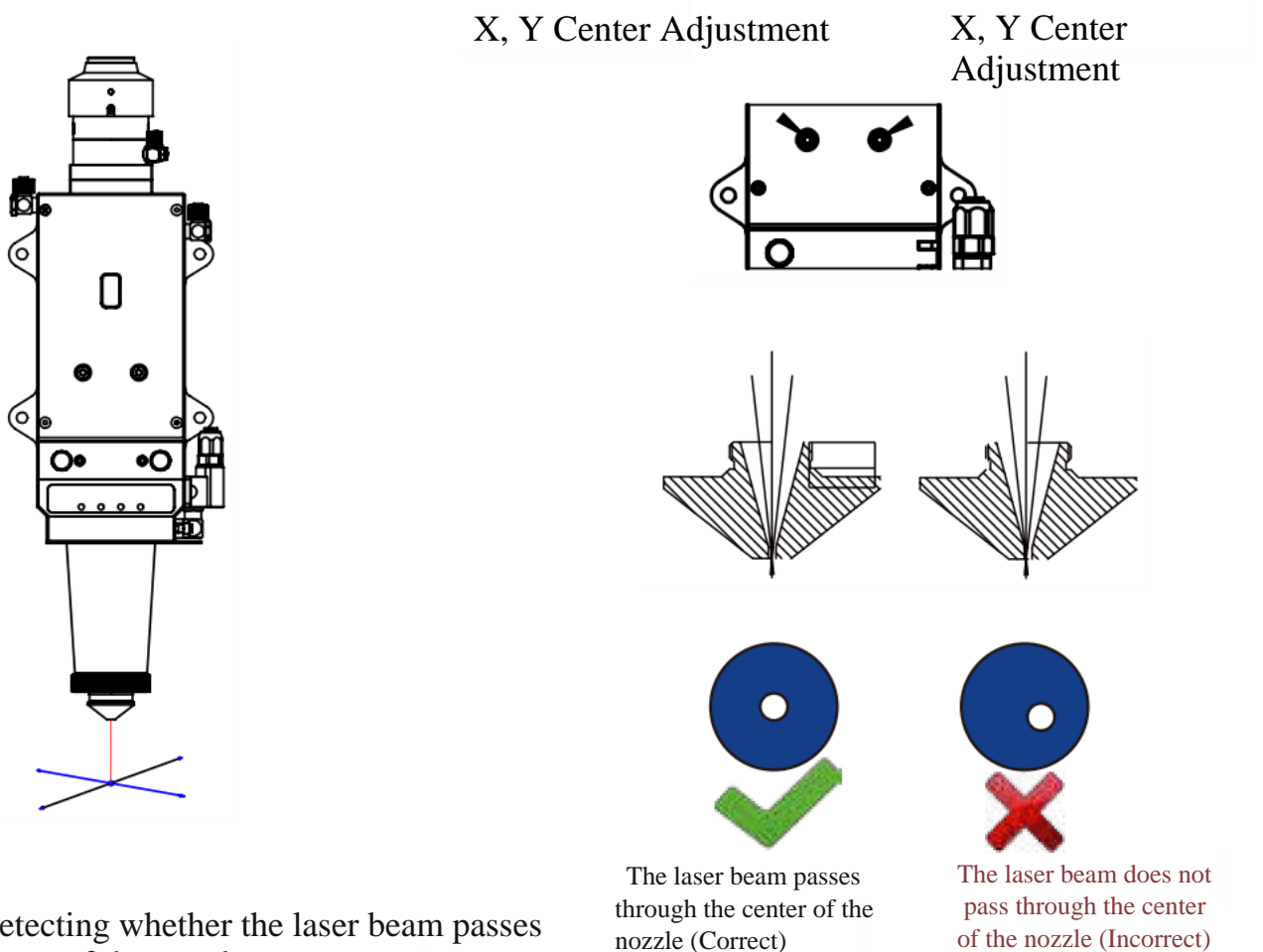


Tighten the nozzle on the ceramic ring by hand, and use a wrench to tighten the ceramic locking ring.

3. Use and Maintenance of the Cutting Head

3.1 Coaxial Adjustment

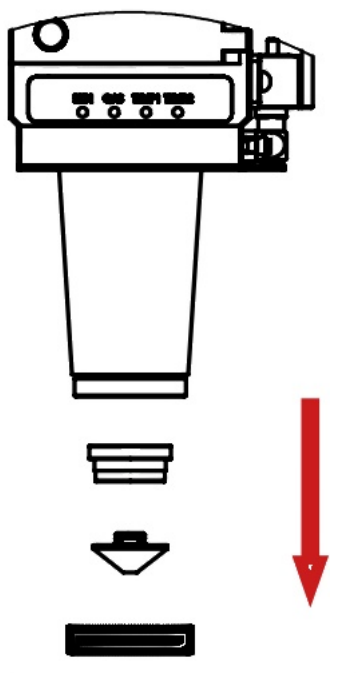
1. Use an Allen wrench to adjust the X/Y horizontal adjustment screws of 1 and 2 so that the laser beam passes through the center of the nozzle.
2. When the laser beam passes through the center of the nozzle, the cutting effect is the best.
3. If the laser beam does not pass through the center of the nozzle, it may result in no light output or poor cutting effect.



Methods for detecting whether the laser beam passes through the center of the nozzle:

1. Stick transparent tape on the nozzle opening (it is best to use a new or non - deformed nozzle).
2. Adjust the power of the laser to about 50W (for example, for a 500W laser, adjust the pulse power to 10%).
3. Let the laser emit light for 1 - 2 seconds, and then remove the transparent tape.
4. Hold the transparent tape against a light source and observe whether the circular mark of the nozzle on the tape is concentric with the burning point of the laser passing through the tape.
5. If they are concentric, the adjustment result is qualified; if not, continue the adjustment until it is qualified.

3.2 Replacement of Ceramic Ring and Nozzle



Power Supply



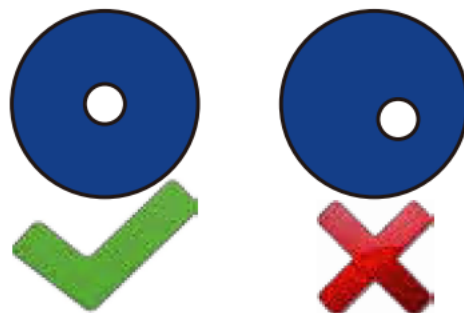
Cooling Gas



Cutting Gas

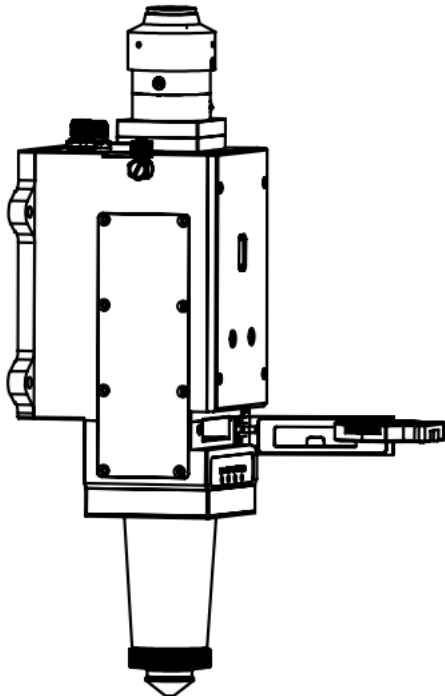


Please choose the Wanshunxing brand.



Center Alignment

3.3 Replacement of Lower Protective Lens



Disassembly Method:
Loosen the locking stud and
then take out the drawer.



Power Supply

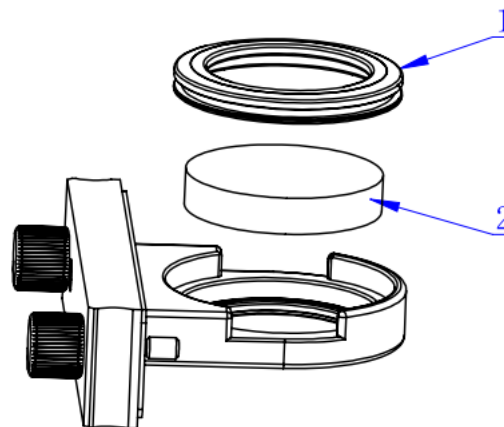


Cooling Gas



Cutting Gas

Dust Prevention: Wear dust - proof gloves and finger cots when disassembling and assembling the lens, and the operation should be carried out in a clean place. (When replacing the lens on - site, you can seal the window with masking tape to prevent dust from entering the interior and causing contamination.)



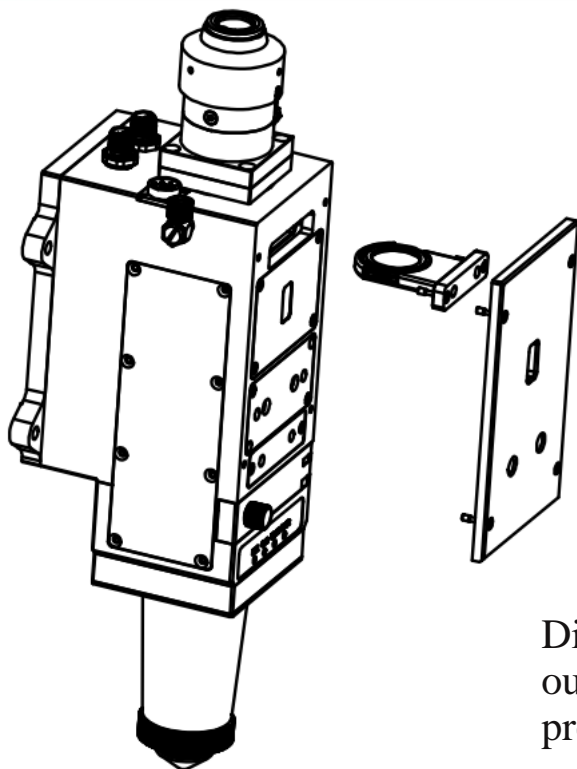
1.Pressure Cover 2.Protective Lens (D37x7)

Disassembly Method: Pull the pressure cover upwards as indicated by the arrow. Do not use tools such as wrenches or pliers, otherwise the parts will be damaged.



3.4 Replacement of Collimating Protective Lens

Caution: Prevent from dropping.



Power Supply



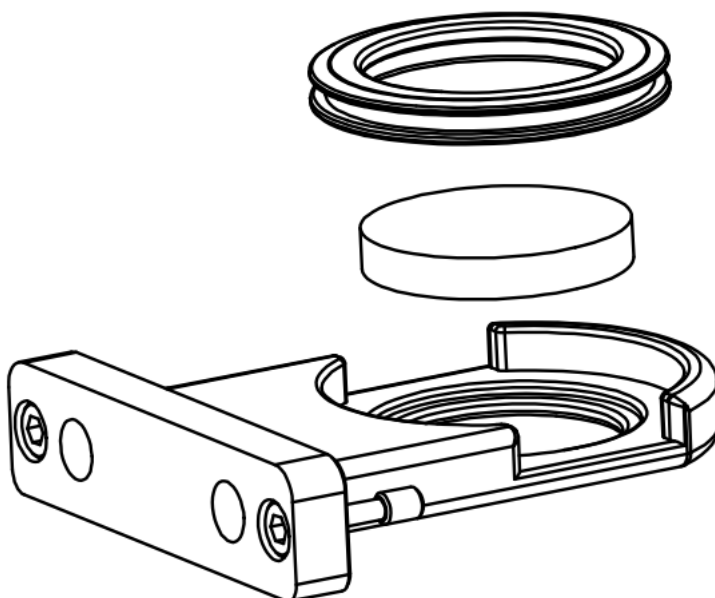
Cooling Gas



Cutting Gas

Disassembly Method: Remove the cover plate, pull out the drawer horizontally, and take out the pressure cover.

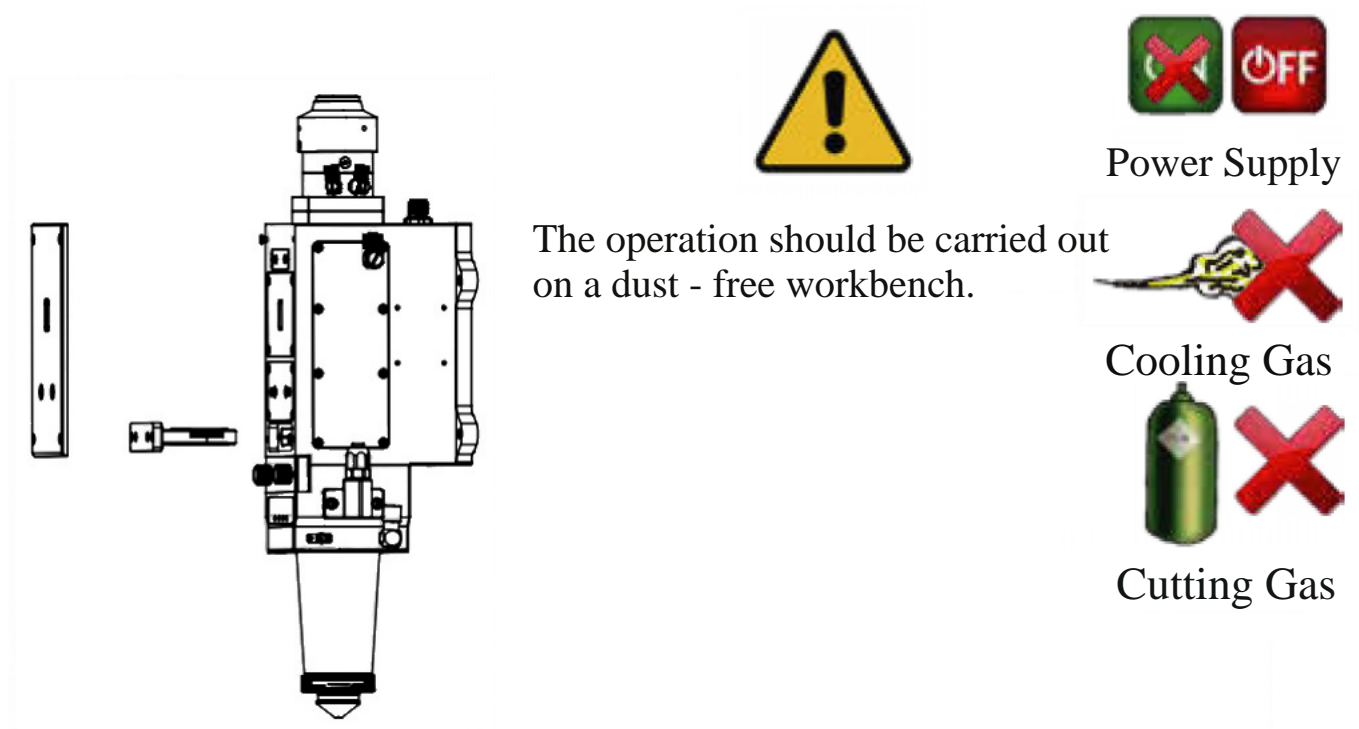
Dust Prevention: Wear dust - proof gloves and finger cots when disassembling and assembling the lens, and the operation should be carried out in a clean place. (When replacing the lens on - site, you can seal the window with masking tape to prevent dust from entering the interior and causing contamination.)



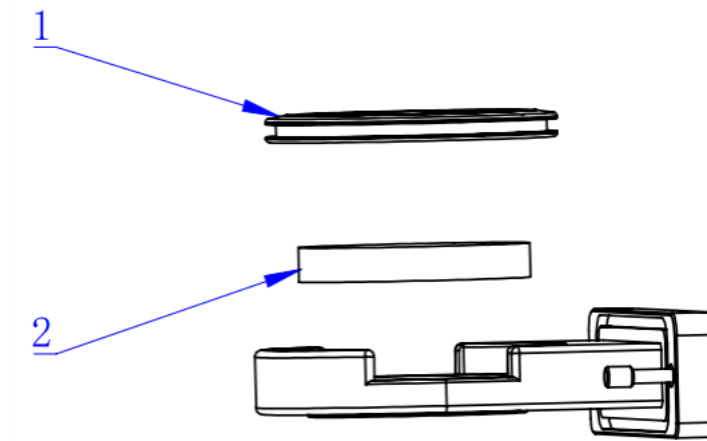
Disassembly Method: Pull out the pressure cover 1 and take out the protective lens 2.

Do not use tools such as wrenches or pliers, otherwise the parts will be damaged.

3.5 Replacement of Middle Protective Lens



Disassembly Method: Remove the cover plate, then loosen the anti - drop screws on the dust cover, and pull out the drawer - type protective lens horizontally.



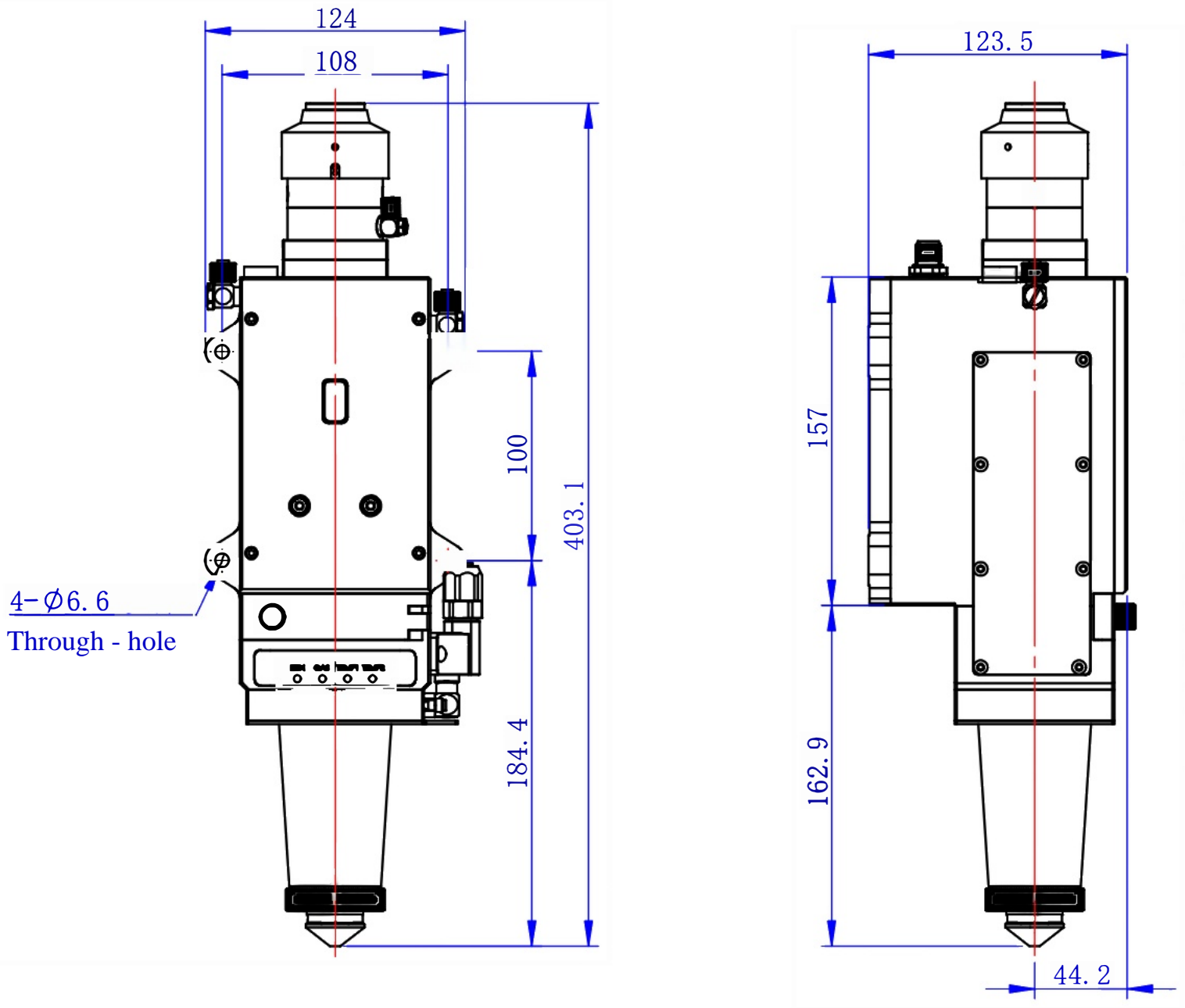
1.Pressure Cover 2. Protective Lens (D34x5)



Disassembly Method: Pull the pressure cover 1 vertically upwards, and then pull the lens upwards as indicated by the arrow. Do not use tools such as wrenches or pliers, otherwise the parts will be damaged.

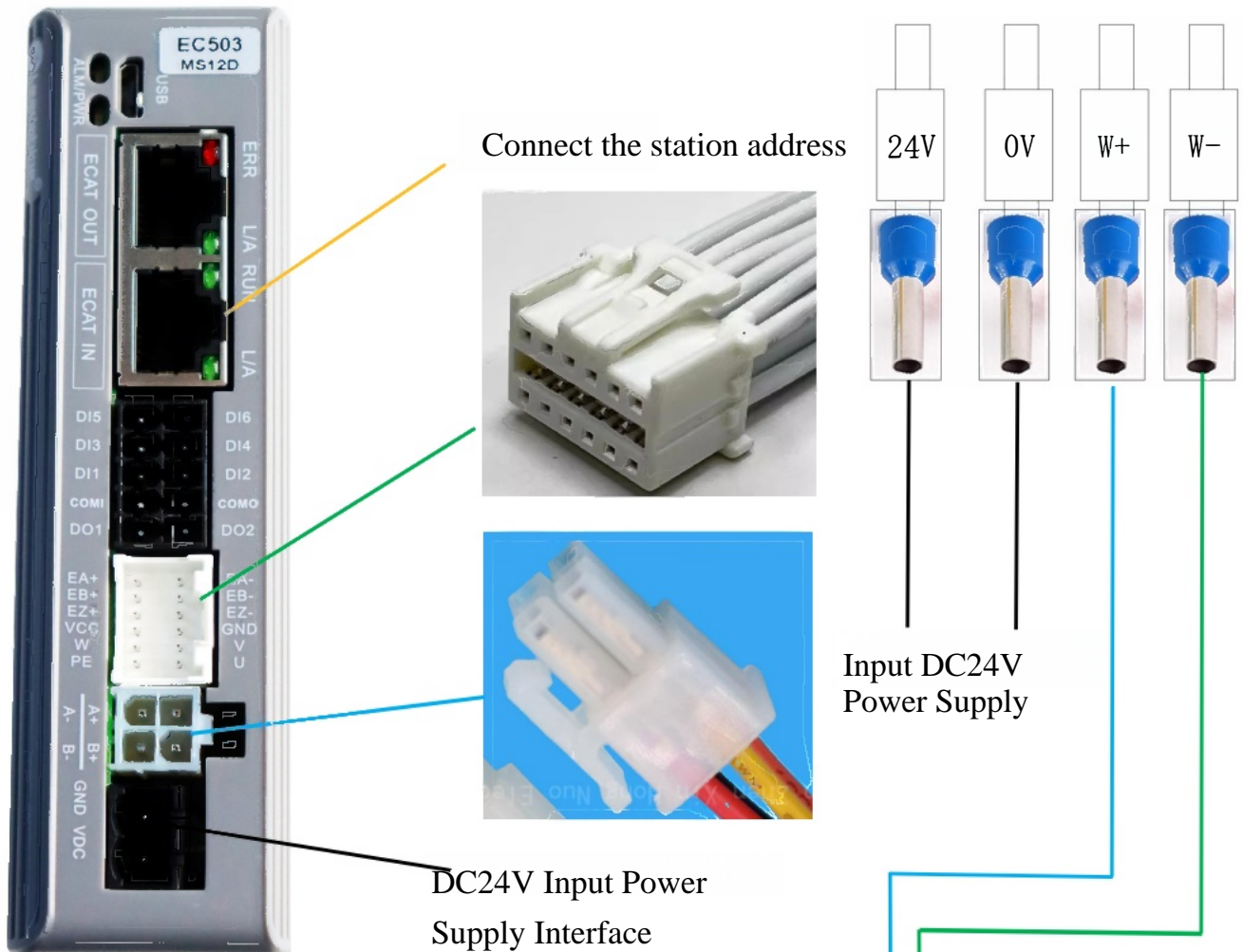
4. Installation Dimensions of the Cutting Head

The following dimensions are for the installation of NC65 (F100xF200).

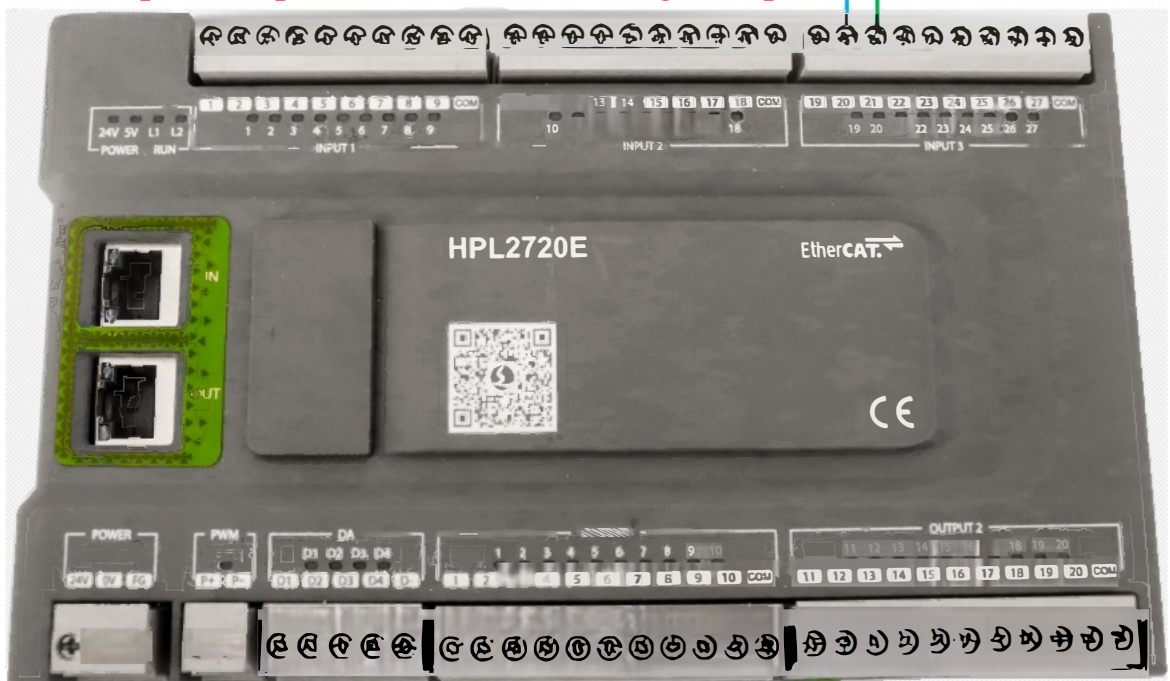


5. Electrical Wiring Instructions

5.1 Wiring Diagram of BCH Bus System

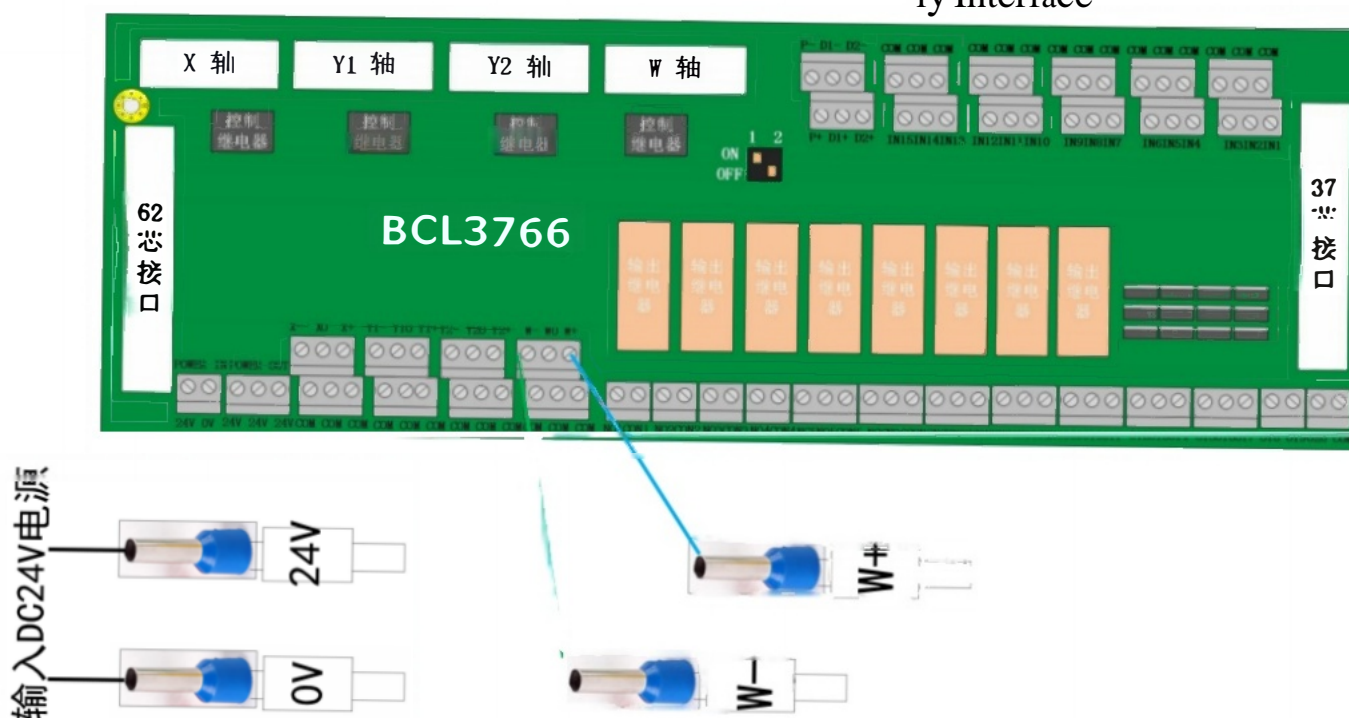
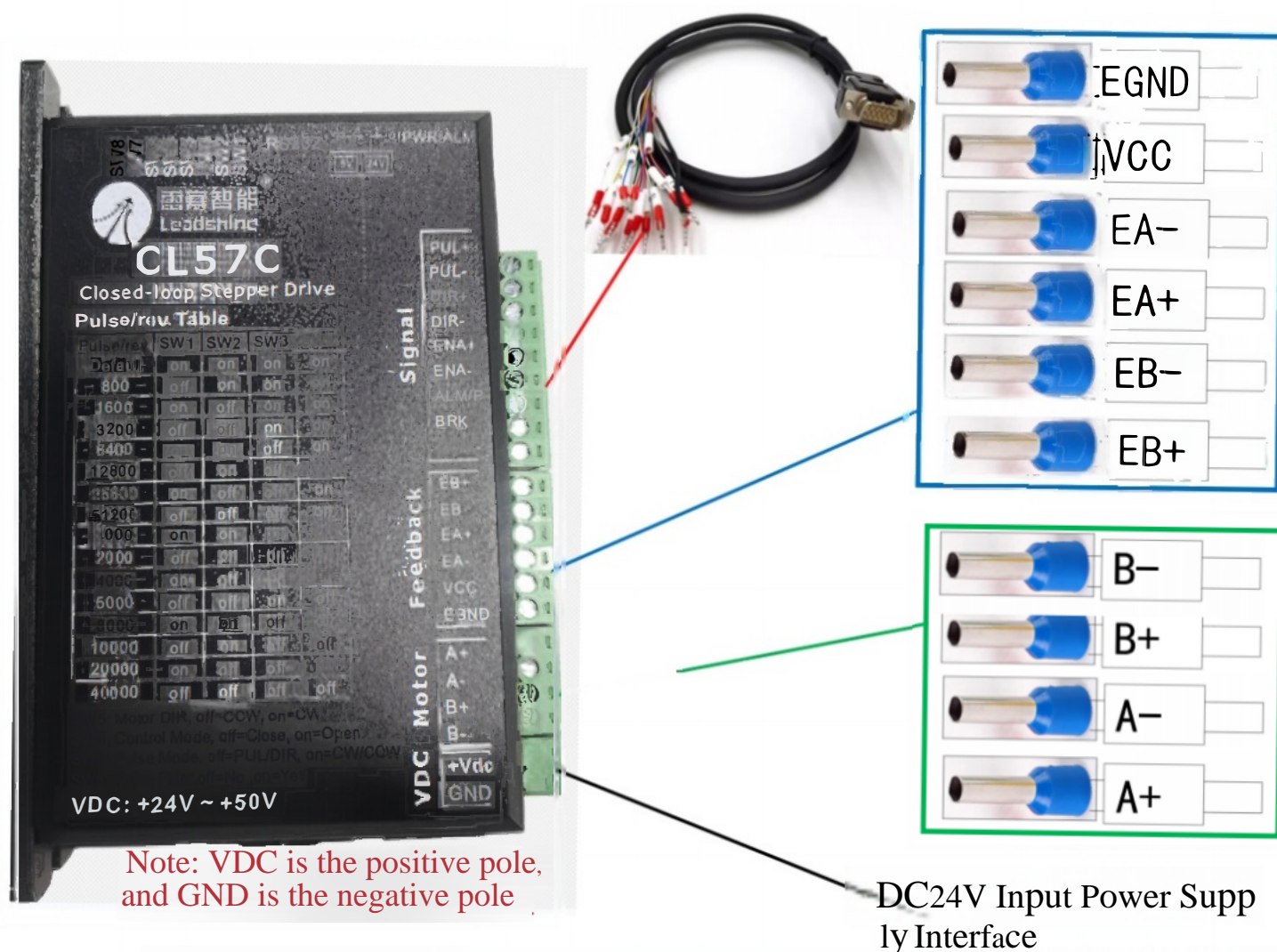


Note: VDC is the positive pole, and GND is the negative pole.



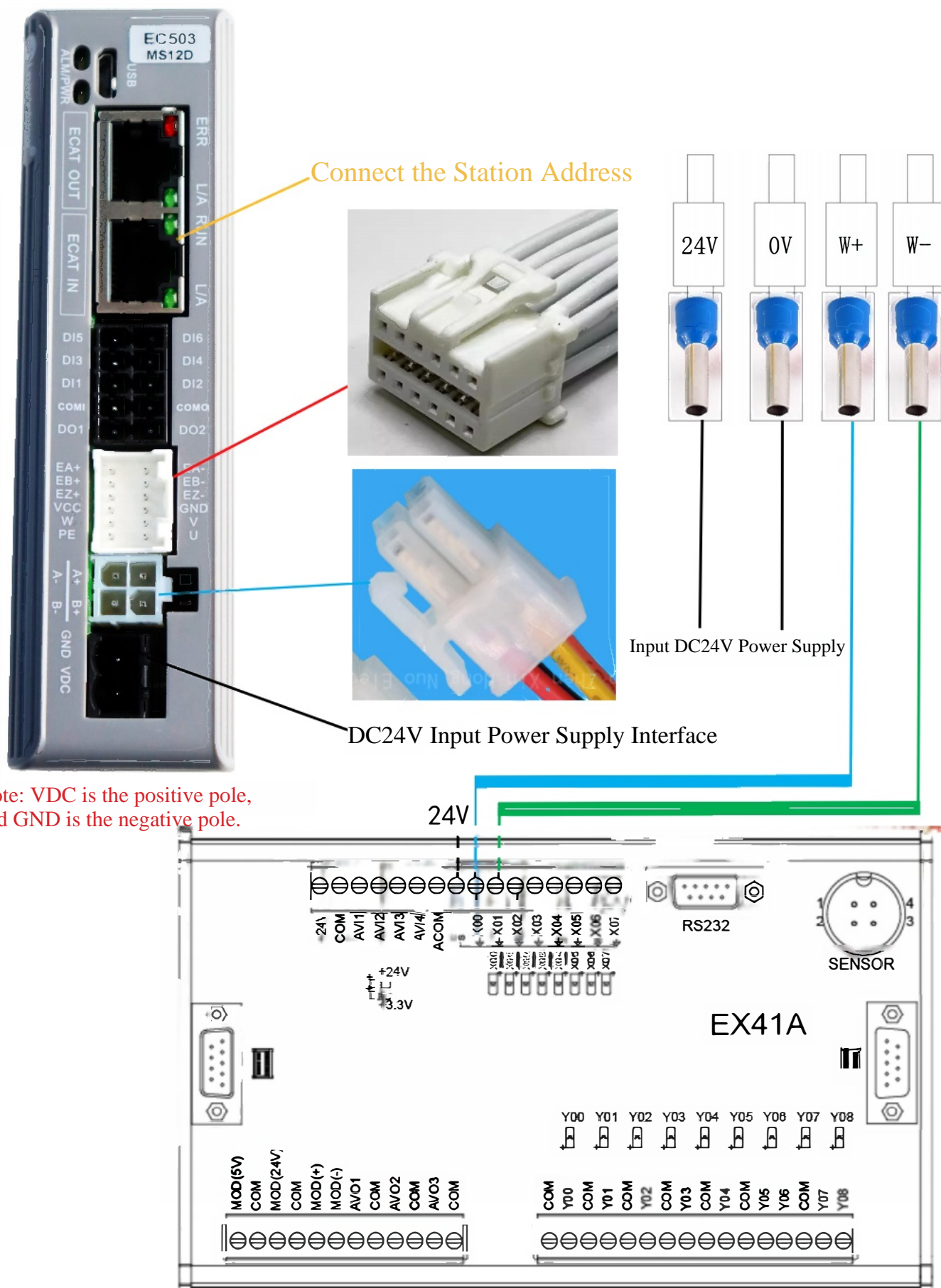
When arranging the electrical cabinet, separate the strong and weak electrical circuits, keep them away from high - power and strongly interfering devices, and ensure good grounding of the equipment.

5.2 Wiring Diagram of BCH Pulse System



When arranging the electrical cabinet separate the strong and weak electrical circuits, keep them away from high-power and strongly interfering devices, and ensure good grounding of the equipment.

5.3 Wiring Diagram of WeiHong Bus System

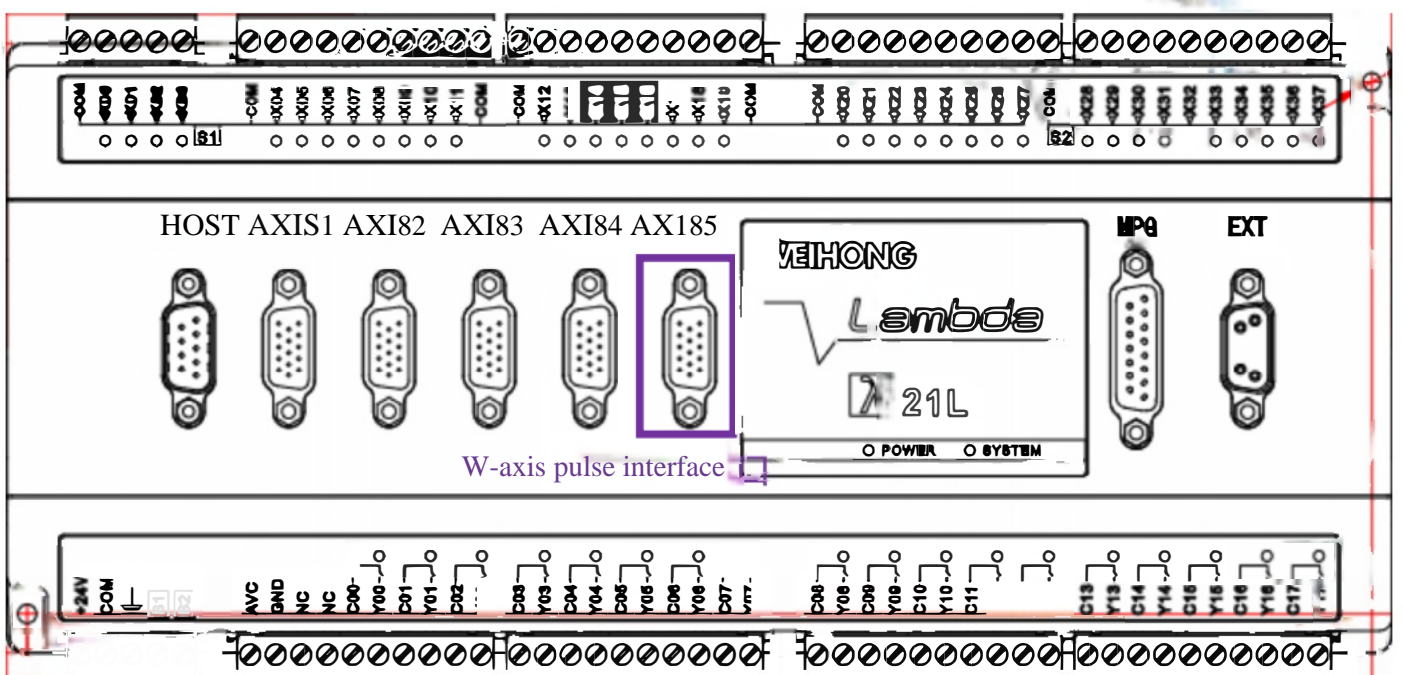
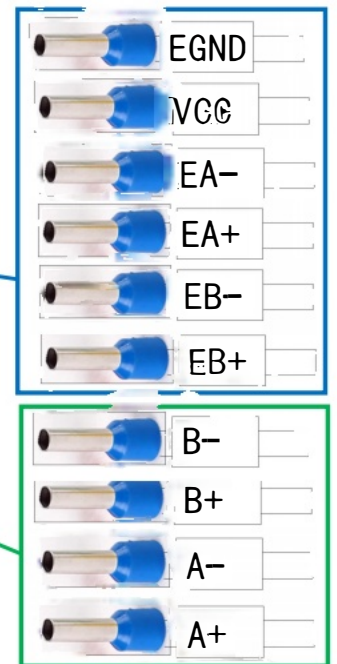


When arranging the electrical cabinet, separate the strong and weak electrical circuits, keep them away from high - power and strongly interfering devices, and ensure good grounding of the equipment.

5.4 Wiring Diagram 1 of WeiHong Pulse System

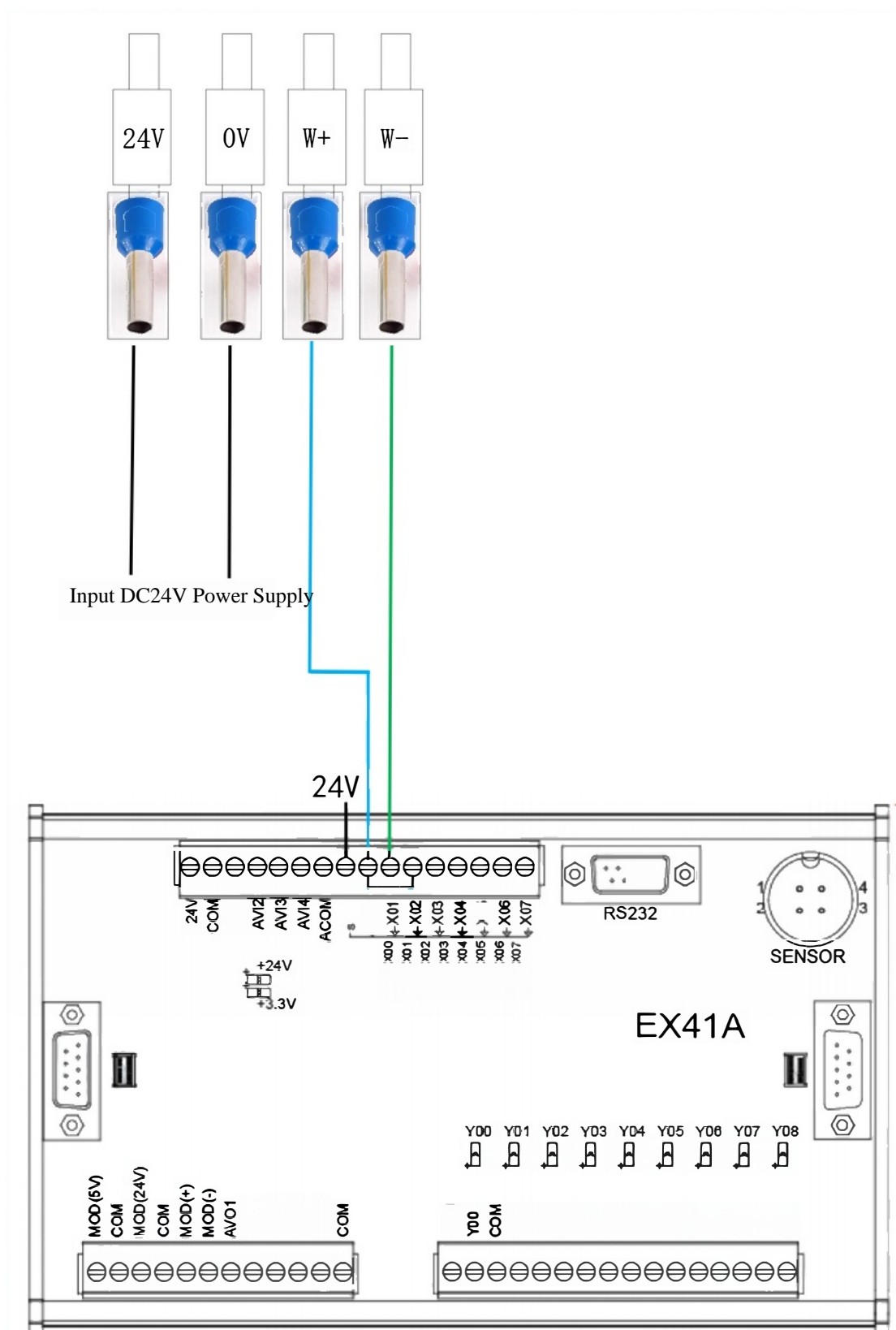


Note: VDC is the positive pole, and GND is the negative pole.



When arranging the electrical cabinet, separate the strong and weak electrical circuits, keep them away from high - power and strongly interfering devices, and ensure good grounding of the equipment.

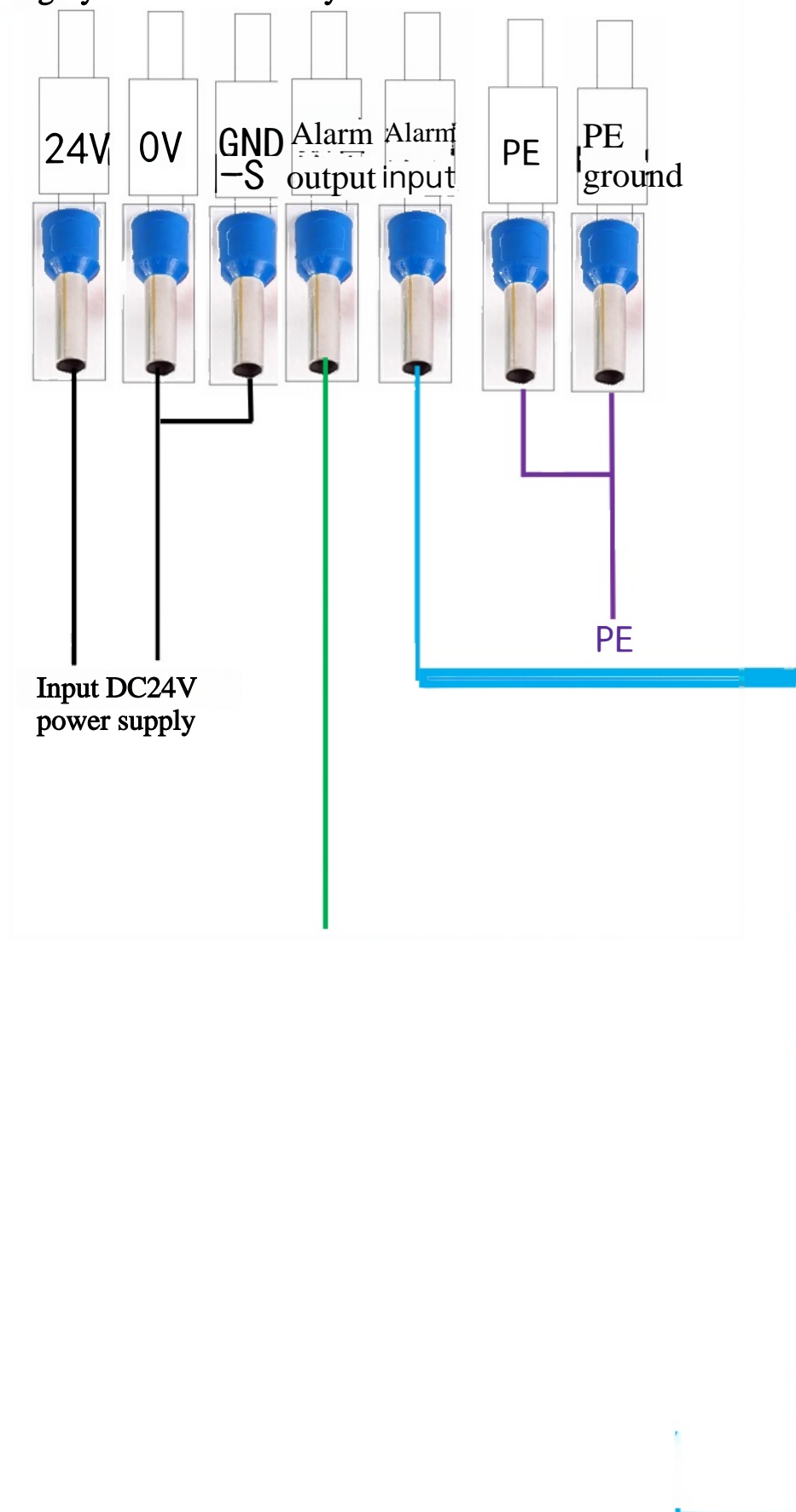
5.5 Wiring Diagram 2 of WeiHong Pulse System



When arranging the electrical cabinet, separate the strong and weak electrical circuits, keep them away from high - power and strongly interfering devices, and ensure good grounding of the equipment.

5.6 Wiring Diagram of Monitoring System with BCH System

Input DC24V Power Supply



Note: The fault alarm outputs a DC24V voltage.



2.The fault alarm outputs a DC24V voltage.

3. The brand of the DC24V intermediate relay in this diagram is IDEC. Pins 1 and 8 are for the coil, and pins 5 and 6 are for the normally - open contacts. The wiring method for intermediate relays of other brands is the same!

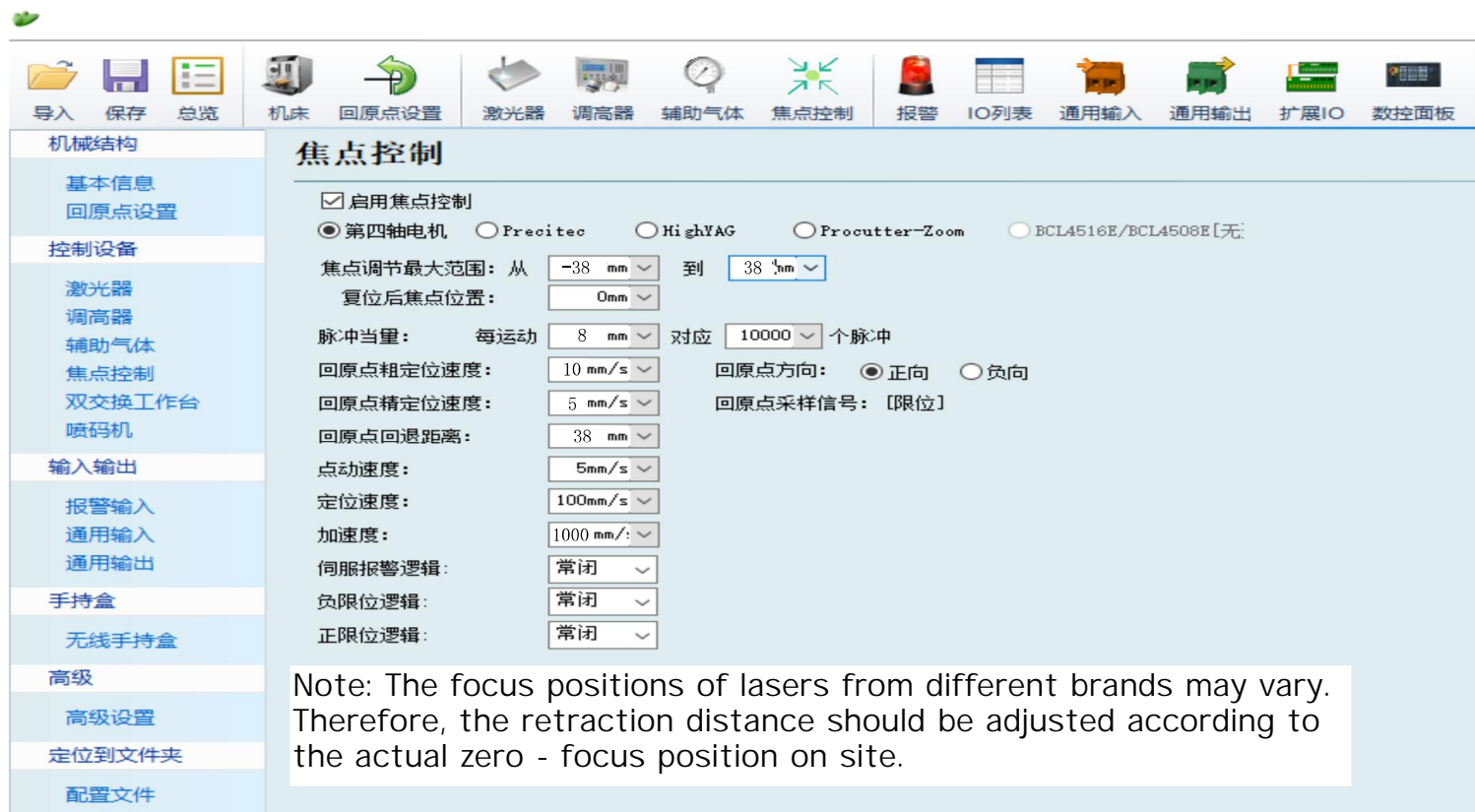
5.8 USB485 Wiring Diagram



Note: If the wiring terminals are not used, they should be removed and kept.

6. System Parameter Configuration Instructions

6.1 Parameter Configuration of BOCHU Pulse System



焦点控制

☒ 启用焦点控制

☒ 第四轴电机 ☐ Precitec ☐ HighYAG ☐ Procutter-Zoom ☐ BCL4516E/BCL4508E [无]

焦点调节最大范围: 从 到

复位后焦点位置:

脉冲当量: 每运动 对应 个脉冲

回原点粗定位速度: 回原点方向: ☒ 正向 ☐ 负向

回原点精定位速度: 回原点采样信号: [限位]

回原点回退距离:

点动速度:

定位速度:

加速度:

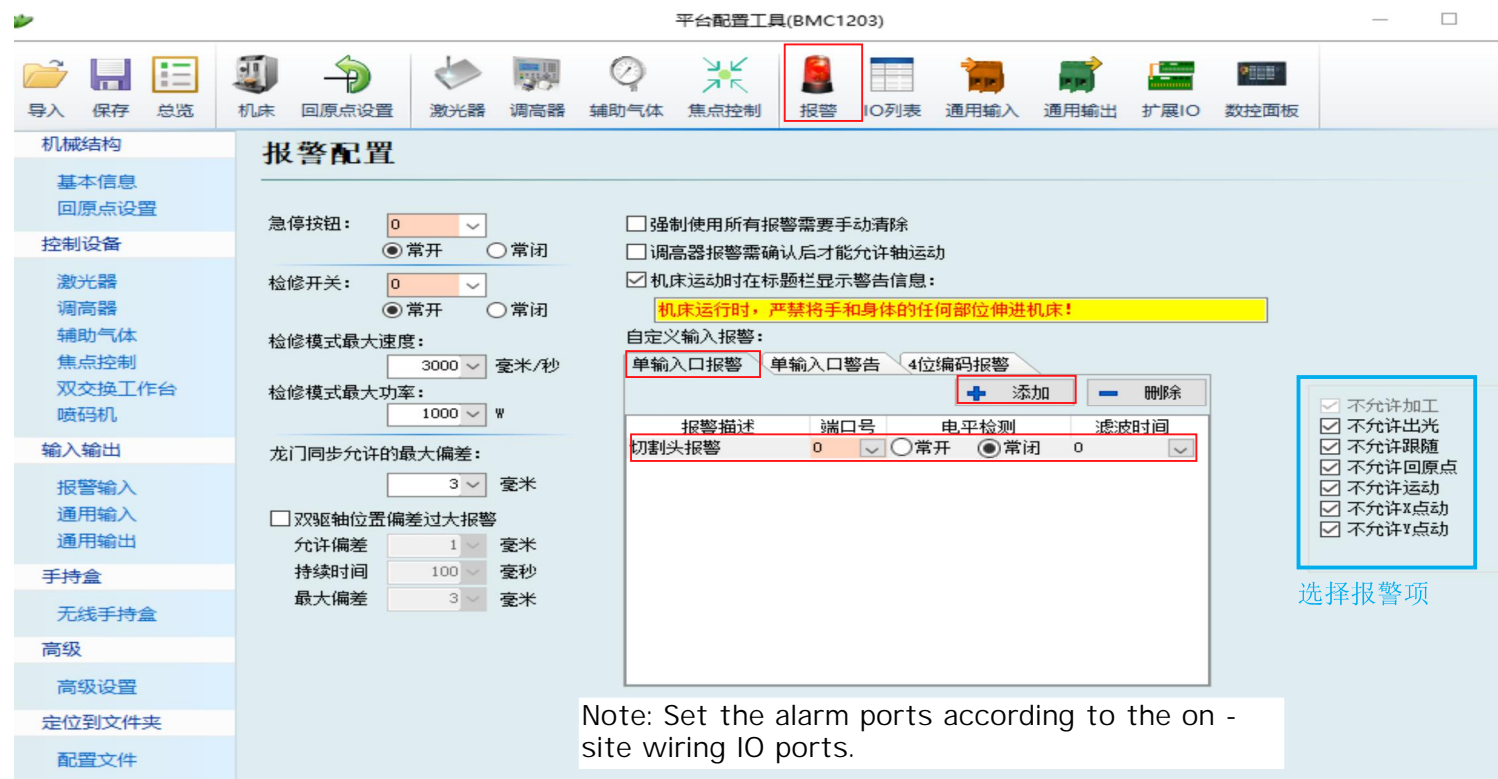
伺服报警逻辑:

负限位逻辑:

正限位逻辑:

Note: The focus positions of lasers from different brands may vary. Therefore, the retraction distance should be adjusted according to the actual zero - focus position on site.

Alarm Settings of BOCHU Pulse System



报警配置

急停按钮: ☒ 常开 ☐ 常闭

检修开关: ☒ 常开 ☐ 常闭

检修模式最大速度: 毫米/秒

检修模式最大功率: W

龙门同步允许的最大偏差: 毫米

☐ 双驱轴位置偏差过大报警

允许偏差: 毫米

持续时间: 毫秒

最大偏差: 毫米

☐ 强制使用所有报警需要手动清除

☐ 调高器报警需确认后才能允许轴运动

☒ 机床运动时在标题栏显示警告信息:

机床运行时, 严禁将手和身体的任何部位伸进机床!

自定义输入报警:

单输入口报警 单输入口警告 4位编码报警

报警描述	端口号	电平检测	滤波时间
切割头报警	0	<input type="radio"/> 常开 <input checked="" type="radio"/> 常闭	0

选择报警项

Note: Set the alarm ports according to the on-site wiring IO ports.

Operation Process: Click "Alarm" > "Single Input Port Alarm" > "Add" > Enter the alarm description > Select the corresponding port > Select high or low level > Save

6.2 Parameter Configuration of BOCHU Bus System

Note: The focus positions of lasers from different brands may vary. Therefore, the retraction distance should be adjusted according to the actual zero - focus position on site.

Alarm Settings of BOCHU Bus System

Operation Process: Click “ Alarm ” > “ Single Input Port Alarm ” > “ Add ” > Enter the alarm description > Select the corresponding port > Select high or low level > Save

6.3 Parameter Configuration of Bercel System

6.3 Parameter Configuration of Bochu System

比例阀类型
默认比例阀

辅助气体

空气
A8

氧气
0

氮气
0

侧吹气
0

高压空气
0

高压氧气
0

高压氮气
0

比例阀控制

DA
最大气压(bar)

不使用
10
Bar

不使用
10
Bar

不使用
10
Bar

不使用
10
Bar

低压总阀
0

高压总阀
0

总阀
A20

If the above parameters are set to 0, it means that the solenoid valve is not used. Different gases can use the same proportional valve, that is, the same DA signal is used for control.

比例阀DA电压范围
0-5V
0-10V
启用比例阀电源控制

报警检测

Please configure as needed. You can configure all or none of them. If any gas circuit alarms, this circuit cannot be used, but it does not affect other gas circuits.

空气报警
0
常开

氧气报警
0
常开

氮气报警
0
常开

高压空气报警
0
常开

高压氧气报警
0
常开

高压氮气报警
0
常开

低压报警
0
常开

高压报警
0
常开

报警延时检查
0
ms

气体报警
0
常开

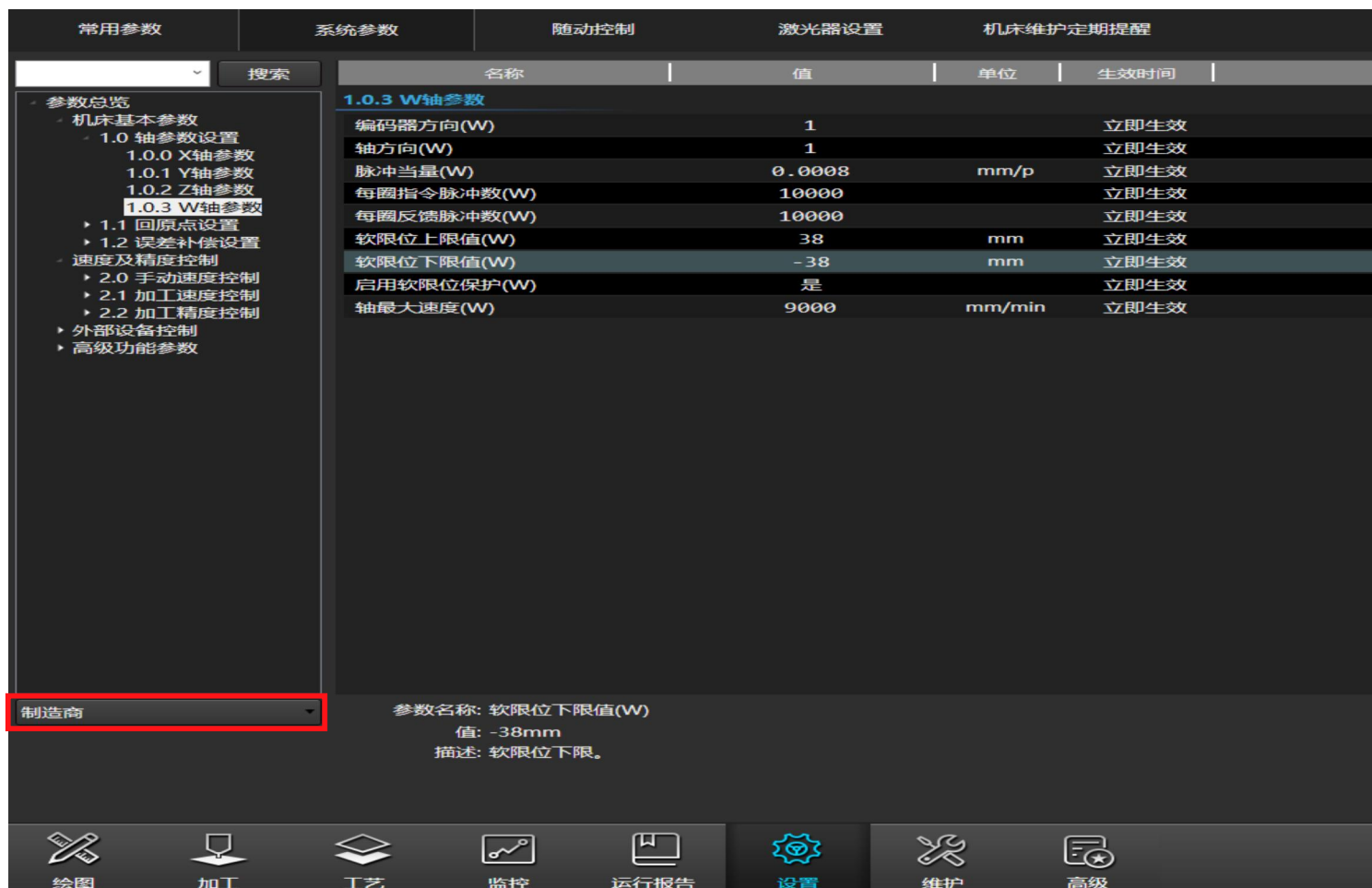
Note:

1. Set the port of the air pressure main valve, which is used for air pressure detection.
2. The setting operation processes of the Bercel pulse system and the bus system are the same.

25

Shenzhen Worthing Technology Co., Ltd.

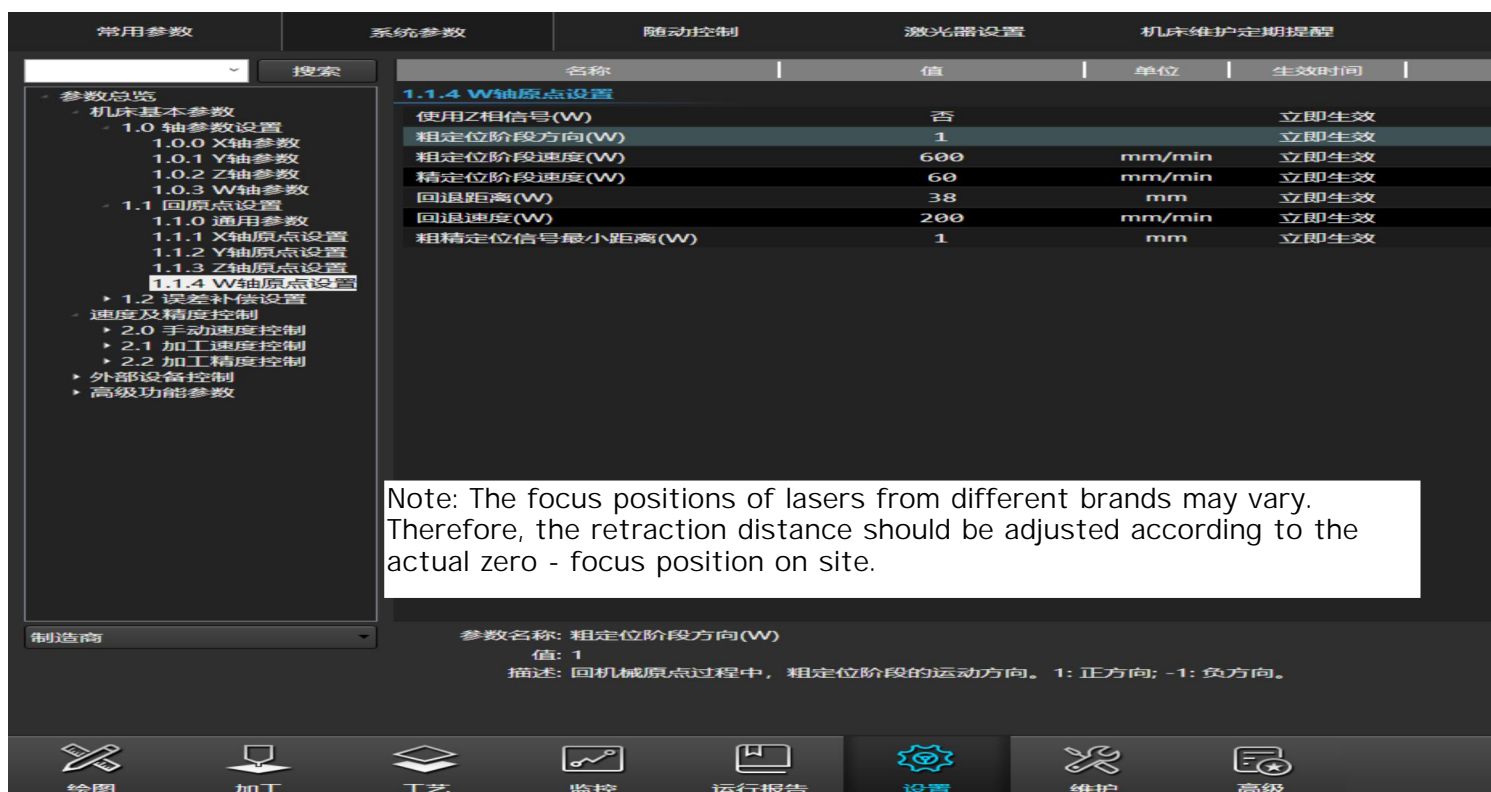
6.4 Parameter Configuration of Weihong Pulse System



名称	值	单位	生效时间
1.0.3 W轴参数			
编码器方向(W)	1		立即生效
轴方向(W)	1		立即生效
脉冲当量(W)	0.0008	mm/p	立即生效
每圈指令脉冲数(W)	10000		立即生效
每圈反馈脉冲数(W)	10000		立即生效
软限位上限值(W)	38	mm	立即生效
软限位下限值(W)	-38	mm	立即生效
启用软限位保护(W)	是		立即生效
轴最大速度(W)	9000	mm/min	立即生效

参数名称: 软限位下限值(W)
值: -38mm
描述: 软限位下限。

Operation Process: Click “Manufacturer” > Password: NcStudio > Enter to modify the parameters of the W - axis.



名称	值	单位	生效时间
1.1.4 W轴原点设置			
使用Z相信号(W)	否		立即生效
粗定位阶段方向(W)	1		立即生效
粗定位阶段速度(W)	600	mm/min	立即生效
精定位阶段速度(W)	60	mm/min	立即生效
回退距离(W)	38	mm	立即生效
回退速度(W)	200	mm/min	立即生效
粗精定位信号最小距离(W)	1	mm	立即生效

参数名称: 粗定位阶段方向(W)
值: 1
描述: 回机械原点过程中, 粗定位阶段的运动方向。1: 正方向; -1: 负方向。

Operation Process: Modify the origin parameters of the W - axis.



6.5 Parameter Configuration of Weihong Bus System

Screenshot of the Weihong Bus System parameter configuration interface. The interface shows a sidebar with a tree view of parameters, a main table of parameters, and a bottom navigation bar.

Parameter Configuration Table (1.0.3 W Axis Parameters):

名称	值	单位	生效时间
驱动器站地址1(W)	5		重启生效
驱动器站地址2(W)	15		重启生效
从站地址内轴偏移地址(W)	0		重启生效
轴方向(W)	1		立即生效
丝杠螺距(W)	8	mm	立即生效
编码器位数(W)	13		立即生效
编码器类型(W)	0		重启生效
电子齿轮比分子(W)	1		立即生效
电子齿轮比分母(W)	1		立即生效
软限位上限值(W)	38	mm	立即生效
软限位下限值(W)	-38	mm	立即生效
启用软限位保护(W)	是		立即生效
轴最大速度(W)	20000	mm/min	立即生效

Parameter Details:

参数名称: 驱动器站地址1(W)
值: 5
描述: W轴从站地址。

Note: Click "Manufacturer" > Password: NcStudio > Enter.

Operation process: Settings > System parameters > 1.0 Axis parameter settings > 1.03 W Axis parameters

Screenshot of the Weihong Bus System parameter configuration interface, showing the 1.1.4 W Axis Origin Settings.

Parameter Configuration Table (1.1.4 W Axis Origin Settings):

名称	值	单位	生效时间
粗定位阶段速度(Z)	1800	mm/min	立即生效
回退距离(Z)	2	mm	立即生效
回退速度(Z)	200	mm/min	立即生效
绝对值编码器回原点动作(Z)	0		立即生效
使用Z相信号(W)	否		立即生效
粗定位阶段方向(W)	1		立即生效
粗定位阶段速度(W)	600	mm/min	立即生效
精定位阶段速度(W)	60	mm/min	立即生效
回退距离(W)	38	mm	立即生效
回退速度(W)	200	mm/min	立即生效
粗精定位信号最小距离(W)	0.5	mm	立即生效
启用锁存(W)	是		立即生效
绝对值编码器回原点动作(W)	1		立即生效

Parameter Details:

参数名称: 加工前回机械原点
值: 否
描述: 加工前是否需要回机械原点。是: 需要; 否: 不需要。

Operation Process: Settings > System Parameters > 1.1 Return - to - Origin Settings > 1.14 W - axis Origin Settings

6.6 Focus control options for the Weihong bus system



参数总览

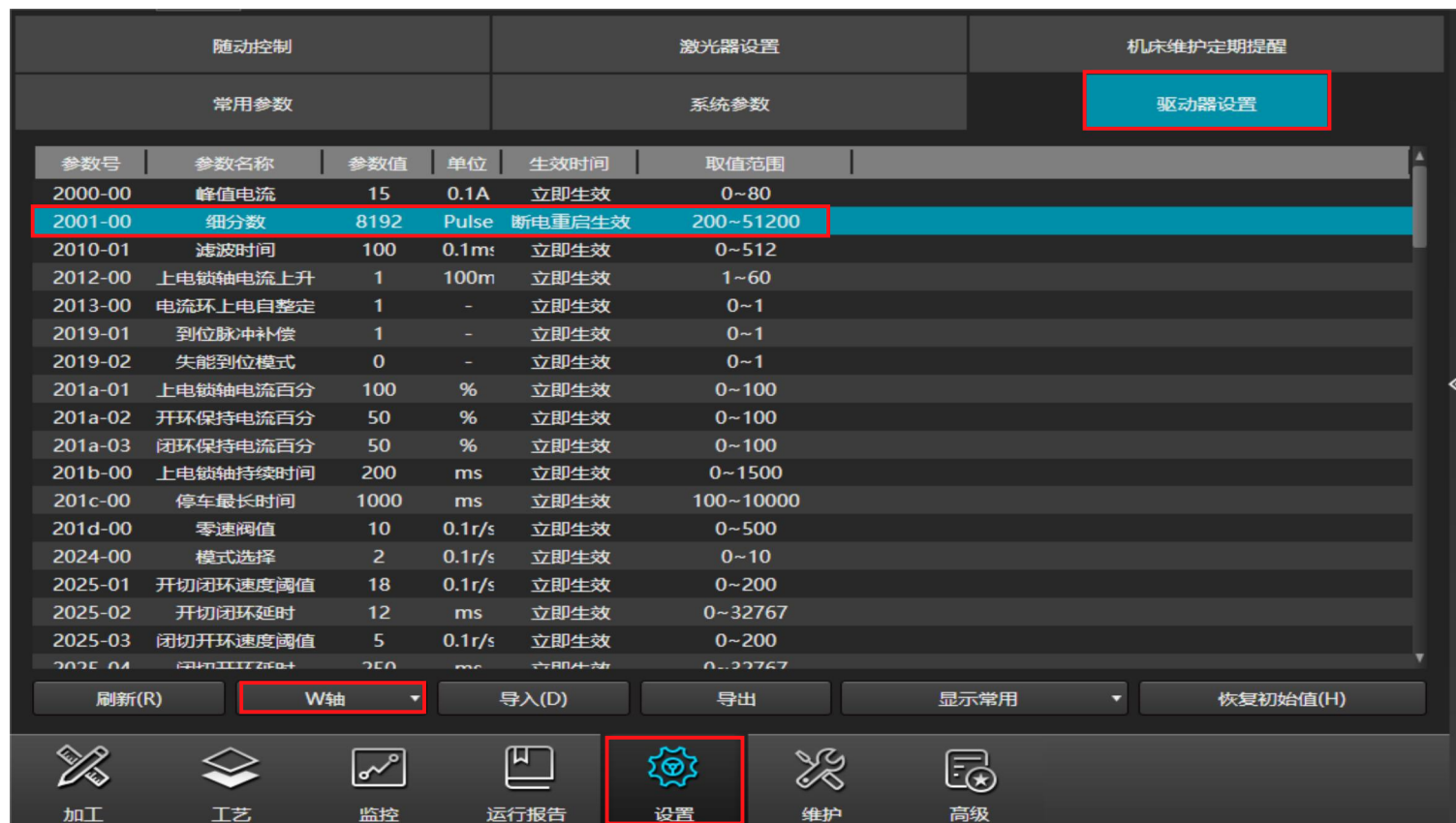
- 机床基本参数
 - 1.0 轴参数设置
 - 1.1 回原点设置
 - 1.2 误差补偿设置
- 速度及精度控制
 - 2.0 手动速度控制
 - 2.1 加工速度控制
 - 2.2 加工精度控制
- 外部设备控制
 - 3.0 监控
 - 3.1 润滑
 - 3.2 气体控制
 - 3.3 排烟
 - 3.4 交换工作台
 - 3.5 焦点控制**
 - 3.6 清洁喷嘴
 - 3.7 蜂鸣器
 - 3.9 安全门
- 高级功能参数

制造商

参数名称: 焦点控制方式
值: 0
描述: 焦点控制方式。0: 轴口控制; 1: 普雷自动调焦; 2: EtherCAT自动调焦。

加工 工艺 监控 运行报告 **设置** 维护 高级

Operation Process: Settings > System Parameters > 3.5 Focus Control > Modify according to the red frame.



参数号	参数名称	参数值	单位	生效时间	取值范围
2000-00	峰值电流	15	0.1A	立即生效	0~80
2001-00	细分数	8192	Pulse	断电重启生效	200~51200
2010-01	滤波时间	100	0.1ms	立即生效	0~512
2012-00	上电锁轴电流上升	1	100m	立即生效	1~60
2013-00	电流环上电自整定	1	-	立即生效	0~1
2019-01	到位脉冲补偿	1	-	立即生效	0~1
2019-02	失能到位模式	0	-	立即生效	0~1
201a-01	上电锁轴电流百分	100	%	立即生效	0~100
201a-02	开环保持电流百分	50	%	立即生效	0~100
201a-03	闭环保持电流百分	50	%	立即生效	0~100
201b-00	上电锁轴持续时间	200	ms	立即生效	0~1500
201c-00	停车最长时间	1000	ms	立即生效	100~10000
201d-00	零速阈值	10	0.1r/s	立即生效	0~500
2024-00	模式选择	2	0.1r/s	立即生效	0~10
2025-01	开切闭环速度阈值	18	0.1r/s	立即生效	0~200
2025-02	开切闭环延时	12	ms	立即生效	0~32767
2025-03	闭切开环速度阈值	5	0.1r/s	立即生效	0~200
2025-04	闭切开环延时	12	ms	立即生效	0~32767

刷新(R) **W轴** 导入(D) 导出 显示常用 恢复初始值(H)

加工 工艺 监控 运行报告 **设置** 维护 高级

Operation Process: Settings > Driver Settings > Select the W - axis > Sub - division Number > Change to: 8192 > Save > Power off the driver.



6.7 Polarity Modification of Weihong System (Applicable to both bus and pulse systems)

外部设备

端口设置

日志列表

地址	极性	采样	描述
LD5E-04.X24	NO	S:4ms	Z轴抱闸输入
LD5E-04.X27	NC	S:4ms	安全门报警
EX33.Fln0	NO	S:1ms	静止中
EX33.Fln1	NO	S:1ms	指令定位中
EX33.Fln2	NO	S:1ms	伺服标定中
EX33.Fln3	NO	S:1ms	跟随中
EX33.Fln4	NO	S:1ms	回停靠点中
EX33.Fln5	NO	S:1ms	空移中
EX33.Fln6	NO	S:1ms	随动出错中
EX33.Fln7	NO	S:1ms	浮头标定中
EX33.Fln8	NO	S:1ms	未随动标定
EX33.Fln9	NO	S:1ms	蛙跳中
EX33.Fln10	NO	S:1ms	蛙跳指令出错
EX33.Fln11	NO	S:1ms	碰板
EX33.Fln12	NO	S:1ms	随动到位
EX33.Fln13	NO	S:1ms	随动下限位
EX33.Fln14	NO	S:1ms	电容突变
EX33.Fln15	NO	S:1ms	出边下扎过深
EX33.Fln16	NO	S:1ms	随动上限位
EX33.Fln17	NO	S:1ms	Z轴停止状态
EX33.Fln18	NO	S:1ms	已到达板面位置
EX33.X00	NC	S:4ms	W轴机械原点/W轴正向限位
EX33.X01	NC	S:4ms	W轴负向限位
EX33.X04	NO	S:4ms	润滑油压低
EX33.SR_Alarm	NC	S:1ms	Z轴伺服报警
EX33.SR_Zero	NO	S:1ms	Z轴编码器零点
EX31A.X00	NO	S:4ms	交换工作台
EX31A.X01	NO	S:4ms	释放床身
EX31A.X02	NO	S:4ms	床身已释放
EX31A.X05	NO	S:4ms	交换台锁定
EX31A.X06	NC	S:4ms	防护门上到位
EX31A.X07	NO	S:4ms	Z轴负向限位 (上)
EX31A.X08	NO	S:4ms	下工作台入
EX31A.X09	NO	S:4ms	上工作台入

输出端口

LD5E-04.Axis0_Enable

X轴使能

LD5E-04.Axis1_Enable

Y轴使能

测试开

测试关

取消测试

取消全部

滤波

修改极性

绘图

加工

工艺

监控

运行报告

设置

维护

高级

Operation Process: Click “ Monitoring ” > “ Port Settings ” > Check if the polarities are consistent. If not, modify the polarities.

7. USB485 Driver Installation Process

7.1 Installation Process 1

The screenshot shows the Windows Settings application, specifically the 'About' page. The left sidebar lists various settings categories, with 'About' selected at the bottom. The main content area is titled '关于' (About) and displays system information. A red box highlights the '系统类型' (System type) entry, which reads '64 位操作系统, 基于 x64 的处理器' (64-bit operating system, based on x64 processor). Another red box highlights the '版本' (Version) entry, which reads 'Windows 10 专业版' (Windows 10 Pro). Below the system specifications, there are buttons for '复制' (Copy) and '重命名这台电脑' (Rename this PC). At the bottom, there are links for '更改产品密钥或升级 Windows' (Change product key or upgrade Windows), '阅读适用于我们服务的 Microsoft 服务协议' (Read the Microsoft service agreement that applies to our services), and '阅读 Microsoft 软件许可条款' (Read the Microsoft software license terms).

设置

主页

查找设置

系统

屏幕

声音

通知和操作

专注助手

电源和睡眠

存储

平板电脑

多任务处理

投影到此电脑

体验共享

剪贴板

远程桌面

关于

关于

系统正在监控并保护你的电脑。

[在 Windows 安全中心中查看详细信息](#)

设备规格

设备名称	66L86JRVNXCX4O8
处理器	Intel(R) Core(TM) i5-10400 CPU @ 2.90GHz 2.90 GHz
机带 RAM	16.0 GB (15.8 GB 可用)
设备 ID	99A52342-C00D-4DA6-B1C5-2108DD30AF91
产品 ID	00330-80000-00000-AA748
系统类型	64 位操作系统, 基于 x64 的处理器
笔和触控	没有可用于此显示器的笔或触控输入

复制

重命名这台电脑

Windows 规格

版本	Windows 10 专业版
版本号	21H2
安装日期	2022/8/23
操作系统内部版本	19044.2604
体验	Windows Feature Experience Pack 120.2212.4190.0

复制

[更改产品密钥或升级 Windows](#)

[阅读适用于我们服务的 Microsoft 服务协议](#)

[阅读 Microsoft 软件许可条款](#)

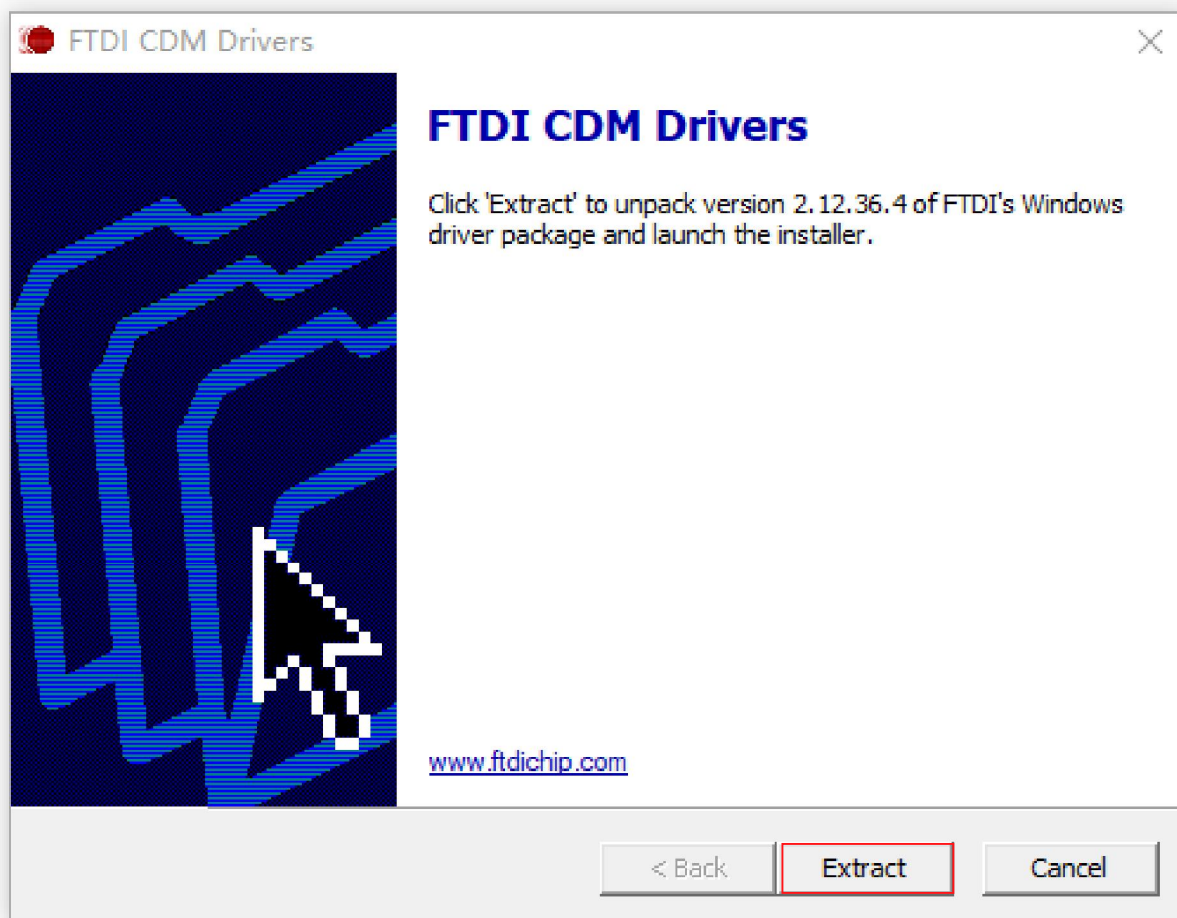
Operation Process: Click “Computer Properties” > “System Type” > “Version” > Install the serial port driver. Select the file corresponding to your computer for installation.

7.2 Installation Process 2

名称	修改日期	类型	大小
Android (Java D2XX)	2022/10/20 9:12	文件夹	
CDMUninstaller_v1.4-卸载工具	2022/10/20 9:13	文件夹	
Linux	2022/10/20 9:15	文件夹	
Windows	2022/10/20 9:15	文件夹	

名称	修改日期	类型	大小
ARM64 Windows 10、Windows 11及Mac M1 VM中的Windows	2022/10/20 9:15	文件夹	
Windows 7	2022/10/20 9:15	文件夹	
Windows 8 10 11、Server 08R2 2012R2	2022/10/20 9:15	文件夹	
Windows CE	2022/10/20 9:15	文件夹	
Windows RT	2022/10/20 9:15	文件夹	
Windows XP	2022/10/20 9:15	文件夹	

名称	修改日期	类型	大小
CDM212364_Setup	2022/7/22 16:48	应用程序	2,212 KB



Operation Process: Open the driver file of the serial port cable with FT231XS chip > Windows > Windows 8/10/11 > CDM212364_Setup > Extract

7.2 Installation Process 3



Operation Process: Click “Next” > “I accept this agreement” > “Next”

7.2 Installation Process 4







Operation Process: Click “Finish”

Note:

1. Click “Computer Properties” > “Device Manager” > Check if there is an exclamation mark next to the port. No exclamation mark means the installation is successful.
2. The driver installation package can be downloaded from the official website of UGREEN.

8. Instructions for Using the Monitoring Software

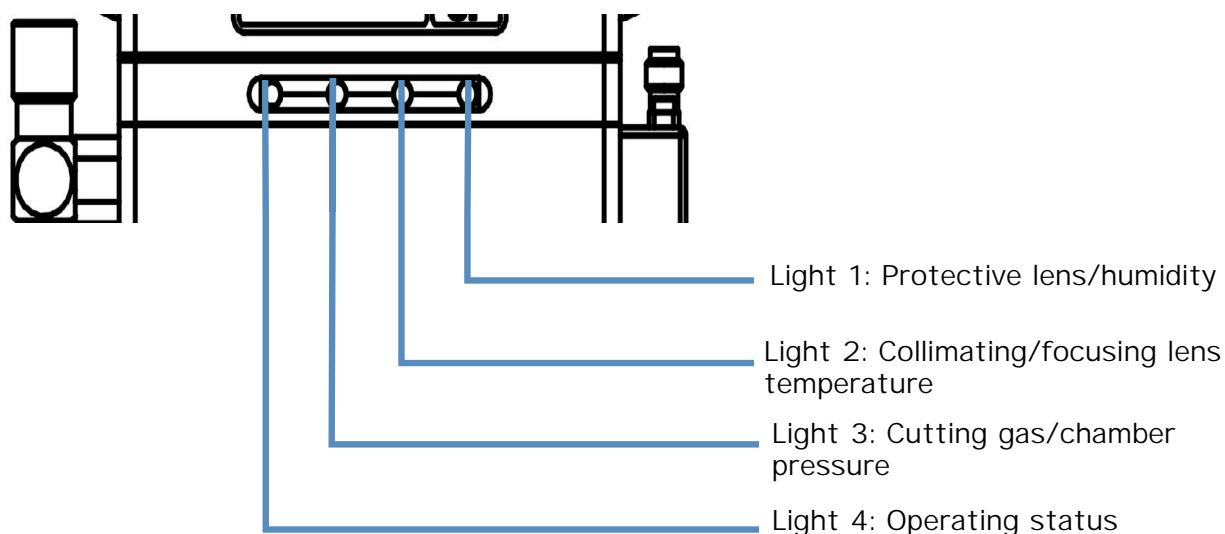
8.1 Installation Process of the Monitoring Software

 System.Windows.Interactivity.dll	2024/3/27 9:39	应用程序扩展	55 KB
 WSX.Language.dll	2024/8/10 14:34	应用程序扩展	67 KB
 WSXMonitor	2024/8/10 14:33	应用程序	607 KB
 WSXMonitor.exe.config	2024/8/17 8:43	CONFIG 文件	2 KB



Operation Process: Open the monitoring file > WSXMonitor > Enter the monitoring interface.

8.2 Explanation of the Status Indicator Lights of the Cutting Head



WSX Monitoring Software

串口号: COM22 ☐ 开机启动

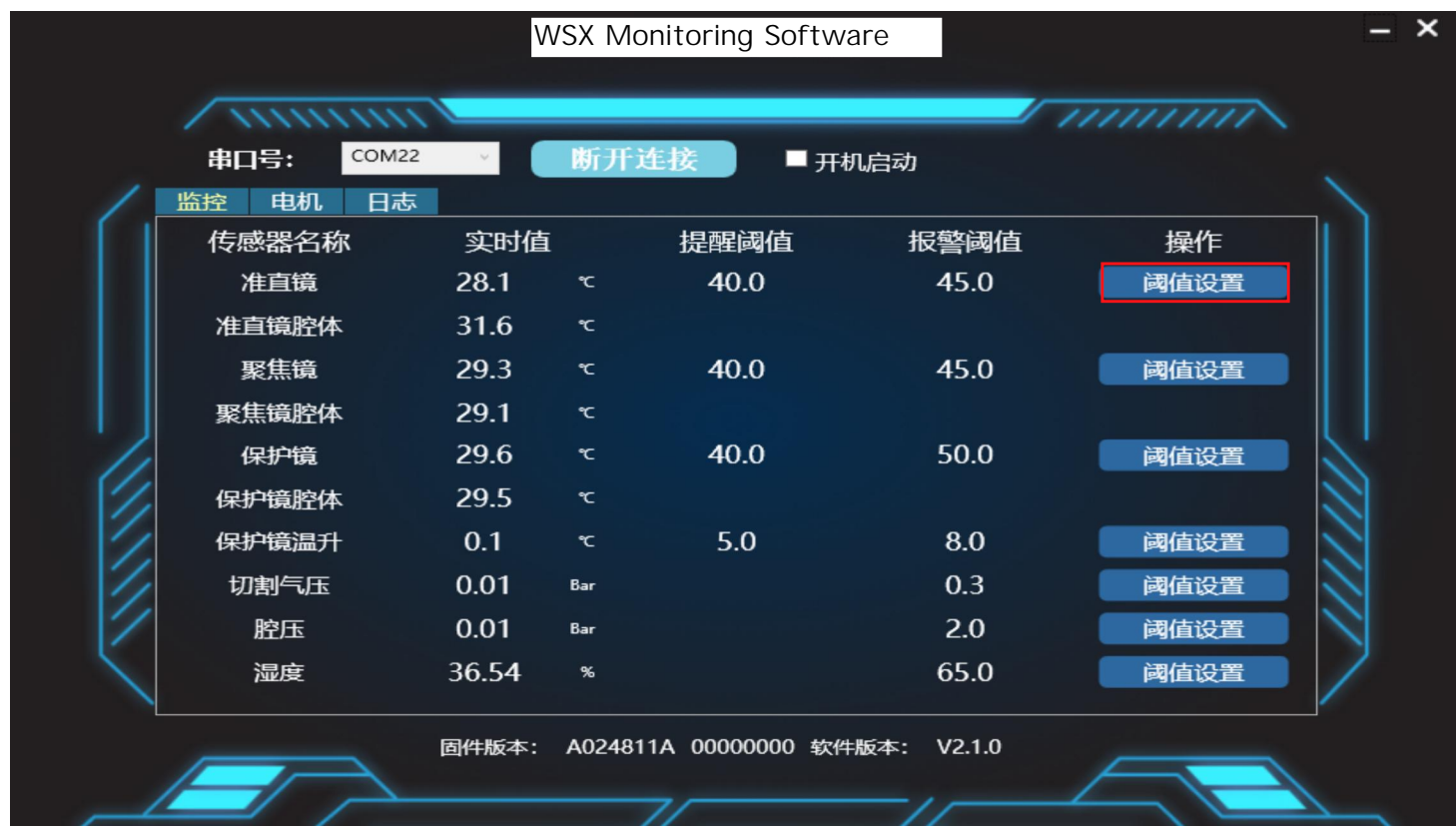
监控 电机 日志

传感器名称	实时值	提醒阈值	报警阈值	操作
准直镜	28.1 °C	40.0	45.0	<input type="button" value="阈值设置"/>
准直镜腔体	31.6 °C			
聚焦镜	29.3 °C	40.0	45.0	<input type="button" value="阈值设置"/>
聚焦镜腔体	29.1 °C			
保护镜	29.6 °C	40.0	50.0	<input type="button" value="阈值设置"/>
保护镜腔体	29.5 °C			
保护镜温升	0.1 °C	5.0	8.0	<input type="button" value="阈值设置"/>
切割气压	0.01 Bar		0.3	<input type="button" value="阈值设置"/>
腔压	0.01 Bar		2.0	<input type="button" value="阈值设置"/>
湿度	36.54 %		65.0	<input type="button" value="阈值设置"/>

固件版本: A024811A 00000000 软件版本: V2.1.0

Operation Process: Select the corresponding serial port number > Start monitoring > If the connection is successful, the temperature will be displayed on the interface.

8.3 Monitoring Parameter Settings



Operation Process: Threshold Settings > Enter the password (666666) > Confirm

8.4 Monitoring Parameter Settings



Operation Process: Modify the temperature parameters > Settings.

Note: The default early - warning value and alarm value do not need to be modified.



Operation Process: Log

9. Drive fault code query

9.1 Pulse-type drive alarm codes

Number of times the ALM flashes	Name	Solutions
1	Over current protection	1. Check the connection between the motor winding and the driver, restart the driver. If there is no alarm, check whether there are any abnormalities in the motor and the motor power cable. 2. Disconnect the motor winding cable from the driver and restart the driver. If the driver still alarms, the driver is damaged.
2	Over voltage protection	1. Restart the driver. 2. If the alarm still exists after restarting the driver, check whether the power supply voltage is too high.
3	Op-amp error	1. Restart the driver. 2. If the alarm still exists after restarting the driver, it is a hardware fault of the driver.
4	Axis locking error	Check whether the motor power cable is broken.
5	Storage error	Connect the host computer using the RS232 debugging port and restore the driver to the factory settings. If the alarm still exists after restoring the factory settings, it is a hardware fault of the driver.
6	Motor parameter self-tuning error	1. Restart the driver. 2. If the alarm still exists after restarting the driver, switch the DIP switch SW6 to the on state.
7	Excessive tracking error	1. Check whether the "Motor resolution" in the parameter list is set correctly. 2. Check the wiring between the motor and the driver to see if the phase sequence is wrong. (The motor A+/A-, B+/B- must correspond to the driver's A+/A-, B+/B-). 3. Check whether the encoder cable is broken. 4. Appropriately increase the acceleration time. 5. Check whether the motor is stuck.
Wrong motor rotation direction	Wrong motor direction setting	Wrong setting of the DIP switch SW5 state.
Motor does not rotate	No pulse signal	Check whether the connection of the pulse signal cable is correct.
Motor rotates in only one direction	Wrong pulse mode selection	Check whether the SW7 pulse mode is set correctly.
	No direction signal	Check whether the connection of the direction signal cable is correct.

Green light does not light up	Not powered on	Check whether the power supply of the driver is correctly connected.
-------------------------------------	-------------------	-------------------------------------------------------------------------



9.2 Bus-type driven alarm codes

Number of times the ALM flashes	Name	Solutions
1	Overcurrent protection	1. Ensure that the driver output cable is not short-circuited; ensure that the motor is not damaged. 2. Adjust the wiring sequence of the motor. 3. Replace the driver with a new one.
2	Overvoltage protection	1. Reduce the power supply voltage on the VDC/GND terminals. 2. Reduce the acceleration and deceleration.
3	Excessive incremental command puls	Check whether the parameter subdivision is correct.
4	Axis locking error	1. Ensure that the wiring of the motor output terminals A+, A-, B+, B- is correct. 2. Ensure that the motor cable is not broken. 3. Ensure that the encoder power supply voltage is normal; ensure that the encoder cable is intact and the encoder ground is in good contact.
6	Self-tuning error	Check whether the motor screw structure is stuck.
7	Position out of tolerance	1. Restart the driver. 2. If the alarm still exists after restarting the driver, check whether the motor power cable is short-circuited. 3. Pull out the motor power cable and restart the driver. If the alarm still exists, the driver is damaged.
8	Encoder disconnection detection	1. Ensure that the encoder cable is correctly connected, and there is no false soldering, misalignment, or short-circuit at the joints.
10	Emergency stop alarm	Ensure that the input signal wiring is correct.
11	Positive and negative limit alarm	Check whether the positive and negative limit signal outputs of the input terminal are normal and whether the hardware is damaged.

12	Command overspeed fault	Check whether the fault occurs after the homing is completed; check whether the slave homing mode is used.
13	Stalling alarm	Check whether the motor screw structure is stuck.
14	Zero-pulling error alarm	1. The encoder resolution of the motor is incorrect, resulting in the motor not being able to run. 2. The motor power cable is connected incorrectly. 3. The motor output is insufficient. Appropriately increase the driver current. 4. If increasing the current still does not work, check whether there is a blockage in the mechanical structure and whether the motor is undersized.
15	Current overload alarm	1. Increase the driver output peak current value Pr4.22 or set bit6 of 0x2056 to 0 to shield it.
Always on	Hardware interrupt protection	Confirm the network connection and the master station ESM conversion sequence.



Shenzhen Wanshunxing Technology Co., Ltd.

Tel: 400 - 836 - 8816 Website: www.wsxlasers.com Email: wanshunxing@wsxlasers.com

Address:

Shenzhen Headquarters: Building 3, Youth Dream Factory, Langkou Industrial Park, Dalang Street, Longhua New District, Shenzhen, Guangdong Province.

Suzhou Branch: Room 301, Building 2, No. 432, Fengyang Road, Qiangtang Village, Yangcheng Lake Town, Xiangcheng District, Suzhou, Jiangsu Province

Wuhan Branch:
Room 401, Jiuyang Science and Technology Park, No. 108, Optics Valley Avenue, Hongshan District, Wuhan.